



DEWA ASSET MANAGEMENT REPORT 2017



OUR VISION

A sustainable innovative world-class utility.

OUR MISSION

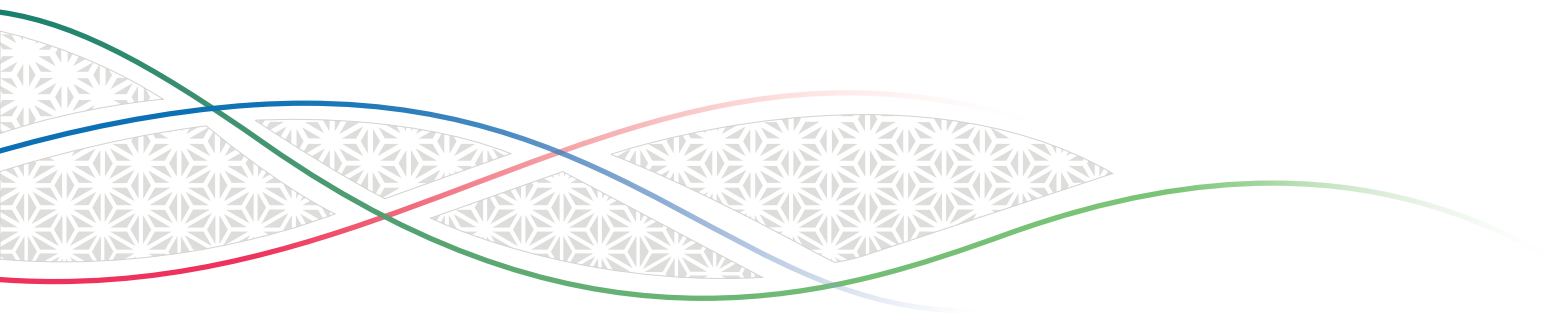
We are committed to the happiness of our stakeholders and promoting Dubai's vision through the delivery of sustainable electricity and water services at a world-class level of reliability, efficiency and safety in an environment that nurtures innovation with a competent workforce and effective partnerships; supporting resources sustainability.

VALUES

Stakeholders' Happiness, Sustainability, Innovation, Excellence, Good Governance

OUR MOTTO

For generations to come





Sheikh Zayed bin Sultan Al Nahyan
Founder of The UAE, 1918-2004



His Highness Sheikh Khalifa bin Zayed Al Nahyan
President of the United Arab Emirates



His Highness Sheikh Mohammed bin Rashid Al Maktoum
Vice President and Prime Minister of the UAE and Ruler of Dubai



His Highness Sheikh Hamdan bin Rashid Al Maktoum
Deputy Ruler of Dubai, Minister of Finance and President of
Dubai Electricity and Water Authority



His Excellency Saeed Mohammed Al Tayer
Managing Director and Chief Executive Officer
Dubai Electricity and Water Authority

ACKNOWLEDGEMENT

DEWA's inaugural annual Asset Management Report 2017 highlights for the first time, an enterprise-wide snapshot of DEWA's achievements and results.

First, we would like to sincerely thank our EVPs and CFO for their leadership, support and guidance on Asset Management. Our deepest gratitude and appreciation goes to those, who supported us through their contributions. These include staff from Power and Water Planning (P&WP), Generation (P&W), Transmission Power (TP), Distribution Power (DP), Water and Civil (W&C), Business Support and Human Resources (BS&HR), Strategy & Government Communication (S&GC), Business Development & Excellence (BD&E), Innovation & The Future (I&TF) and in Finance Department (FD) respectively.

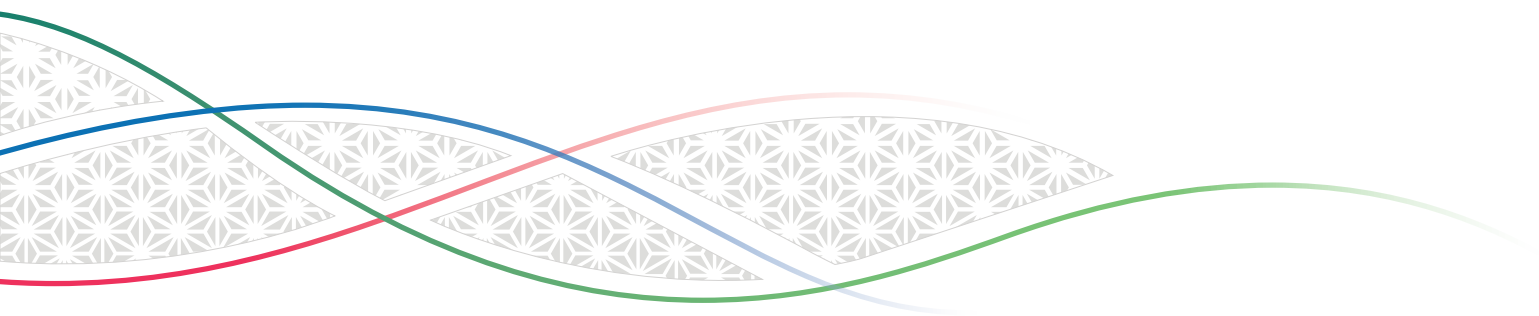
We would also like to thank the Distribution Power (DP) Asset Management team for initiating this report and the Finance Department (FD) staff who consolidated, reviewed and supervised it. Last but not least, we sincerely thank the EVP (S&GC), VP Marketing & Corporate Communication, and the staff who contributed in reviewing the report.

On behalf of the editing team,

Jassim Rajab
Financial Controller
Dubai Electricity and Water Authority

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“ We implement what we plan, and we pursue actions not theories. The rapidly changing world requires us to accelerate our pace of development, for history does not recognise our plans but achievements.”

His Highness Sheikh Mohammed bin Rashid Al Maktoum

Vice President and Prime Minister of the UAE and Ruler of Dubai

MESSAGE FROM THE MD&CEO

I am pleased to introduce the first annual Asset Management Report by Dubai Electricity and Water Authority. This provides an overview of all DEWA's assets, and their efficient and sustainable use.

At DEWA, we work under the directives of the wise leadership of His Highness Sheikh Khalifa bin Zayed Al Nahyan, President of the UAE, and His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, on our ambitious initiatives and development projects. We strive to achieve the objectives of the UAE Centennial 2071, the UAE Vision 2021, and the Dubai Plan 2021 to secure a happy future and a better life so the UAE becomes the best country in the world and always number one.

Our total assets are worth AED 137 billion, with investments over AED 81 billion for the next five years, to meet growing demand for electricity and water in the Emirate. Our strong infrastructure can generate 10,213MW of electricity and 470 million imperial gallons of desalinated water per day (MIGD) to meet the ever-increasing demand in Dubai.

We are committed to continuing our pioneering development plans and projects that have characterised DEWA's work since its establishment. Thanks to our robust assets, we outperformed European and American companies, achieving global competitive results. This reflects DEWA's position as being at the forefront of the international community, by reducing Customer Minutes Lost (CML) to 2.68 minutes compared to 15 minutes recorded by leading utilities in the European Union. DEWA recorded 3.3% losses in its electricity transmission and distribution networks compared to 6-7% recorded in Europe and the USA. Water network losses decreased to 7.1%, compared to 15% in North America. The UAE, represented by DEWA ranked first globally for getting electricity, according to the World Bank's Doing Business Report 2018.

DEWA's continued journey towards excellence reached a milestone in 2016 when it obtained the ISO 55001:2014 asset management certification, becoming the first government utility to obtain the international standard. DEWA uses the best international practices in all its operations. DEWA also uses integrated systems to efficiently maintain its asset management, based on the highest standards from around the globe, to assure balance between costs, risks, and asset performance. All these achievements directly support our vision to become a sustainable innovative world-class utility, which achieves great results for our customers, clients, and stakeholders.

This report represents DEWA's commitment to be transparent with its stakeholders and show how its internal operations contribute to achieving excellence. This report shows that DEWA's asset management practices extend beyond physical assets to include its customer's and intangible assets such as its innovation programme, in addition to its most valuable assets, its employees. The report also highlights DEWA's Asset Management Strategy and Framework as well as mechanisms developed by each core division to foster optimal life cycle asset management. This report discusses these topics in a unique way that highlights how asset management affects the community and enhances DEWA's corporate social responsibility efforts.

DEWA's success in asset management has brought us to a new height of international competitiveness, surpassing other European and American companies and we promise to keep on this drive towards excellence. I look forward to sharing our future successes in our journey towards excellence.

His Excellency Saeed Mohammed Al Tayer
Managing Director and Chief Executive Officer
Dubai Electricity and Water Authority

ABOUT THIS REPORT

This is DEWA's inaugural annual *Asset Management Report*. It highlights, for the first time, an enterprise-wide snapshot of DEWA's Asset Management. The year 2016 marked a major milestone in DEWA's continued journey towards excellence when it obtained the ISO 55000:2014 asset management certification, becoming the first government utility to obtain the international standard. This report represents DEWA's commitment to be transparent with its stakeholders and serves as a vignette showing how its internal operations contribute towards achieving its vision to be a *sustainable innovative world-class utility*.

This report shows that DEWA's asset management practices extend beyond physical assets to include its customer's and intangible assets such as its innovation programme, in addition to its most valuable assets, its employees. The report also highlights DEWA's Asset Management Strategy and Framework as well as mechanisms developed by each core division to foster optimal life cycle asset management. This report discusses these topics in a unique way that highlights how asset management impacts the community and enhances DEWA's corporate social responsibility efforts.

A BRIEF ABOUT DEWA

DEWA is a government-owned utility that is solely responsible for supplying electricity and water to the Emirate of Dubai. DEWA is unique in the utilities sector because it is a fully integrated company that operates the entire value chain of power and water from generation and transmission to distribution. As of 31 December 2017, DEWA's asset value was AED 137 billion and the number of employees totalled 11,512.

SCOPE AND THEMES

- The information and data contained in this report cover all of DEWA's enabling functions and core divisions. As DEWA is a large utility whose core function is asset management, this report is selective in terms of its boundaries and prioritises a holistic view over a comprehensive one. The aim is for this report to be engaging for stakeholders both inside and outside of DEWA. For this reason, this report varies in scope of details provided in order to achieve its purpose of communicating a holistic view of DEWA's asset management practices.
- The report consists of six themes that provide different perspectives into the application of asset management across DEWA's enabling functions and core divisions.



Leadership in Asset Management



Our Greatest Assets – Happy Employees



Embedding Risk Management



Customer Happiness Drives Value Creation



Innovation – The Game Changer



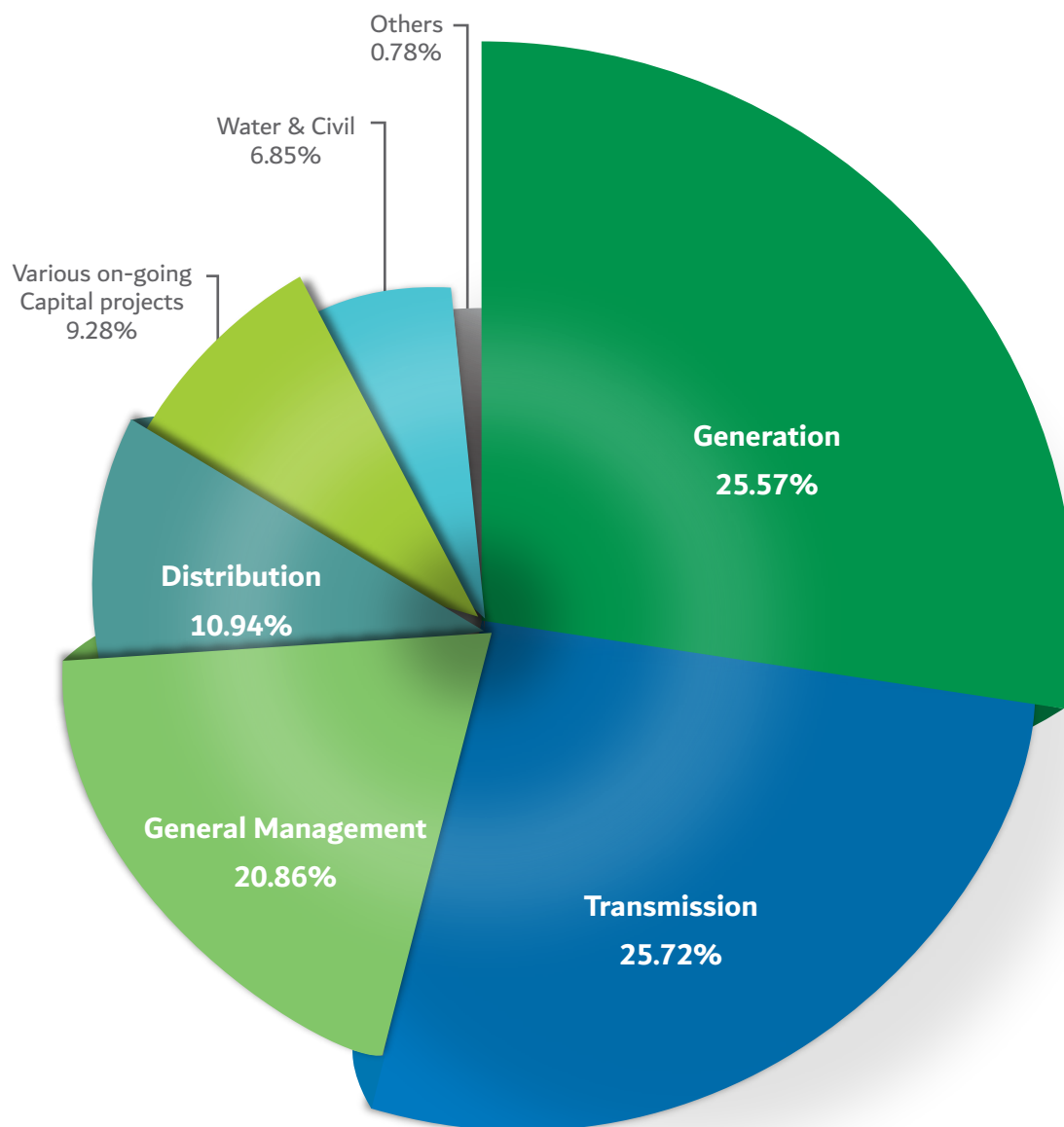
Community – Corporate Social Responsibility

AS OF 31 DECEMBER 2017, DEWA'S ASSET VALUE TOTALLED AED 137 BILLIONS.

The core asset owning and managing divisions at DEWA are Generations Division (GD), Transmission Power (TP), Distribution Power (DP) and Water & Civil (W&C). GD and TP have the highest-value assets, together accounting for 51.29% of DEWA's total asset value. The other two core divisions, DP and W&C account for approximately 17.79%.

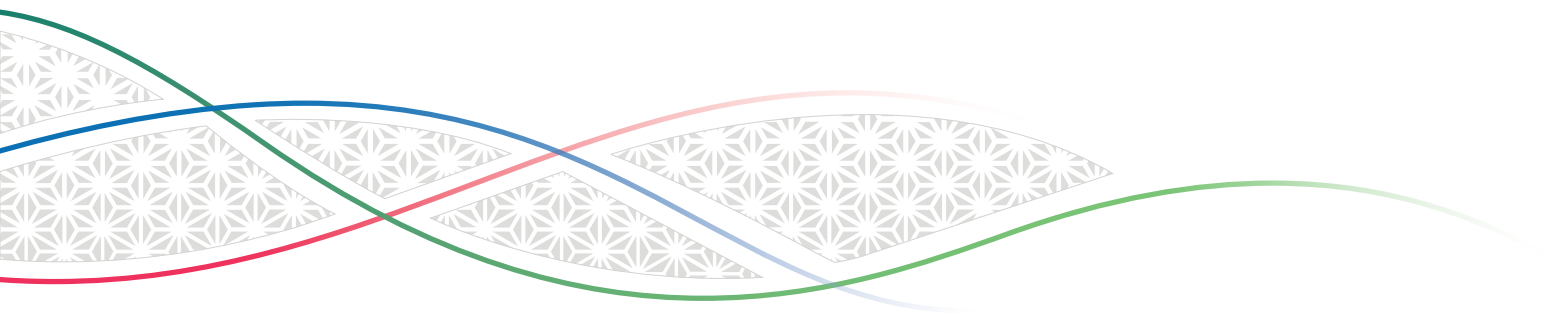
General Management and Capital Projects account for 30.14%, while Business Support & Human Resources (BS&HR), Customer Happiness (CH), Power & Water Planning (P&W Planning), Innovation and The Future (I&TF) account for less than 1%.

DEWA's Asset value of AED 137 Billion is broken down as per the following:



DEWA's asset value broken down by Division

1. LEADERSHIP IN ASSET MANAGEMENT



DEWA SUPPORTS DUBAI'S SUCCESS



AED 137 billion
Value of Assets

11,512
Employees

Dubai GDP
AED 410.6 Billion

*Govt. of Dubai / Dubai Statistics Center, 2017

2,900
Industries

193,000
Businesses

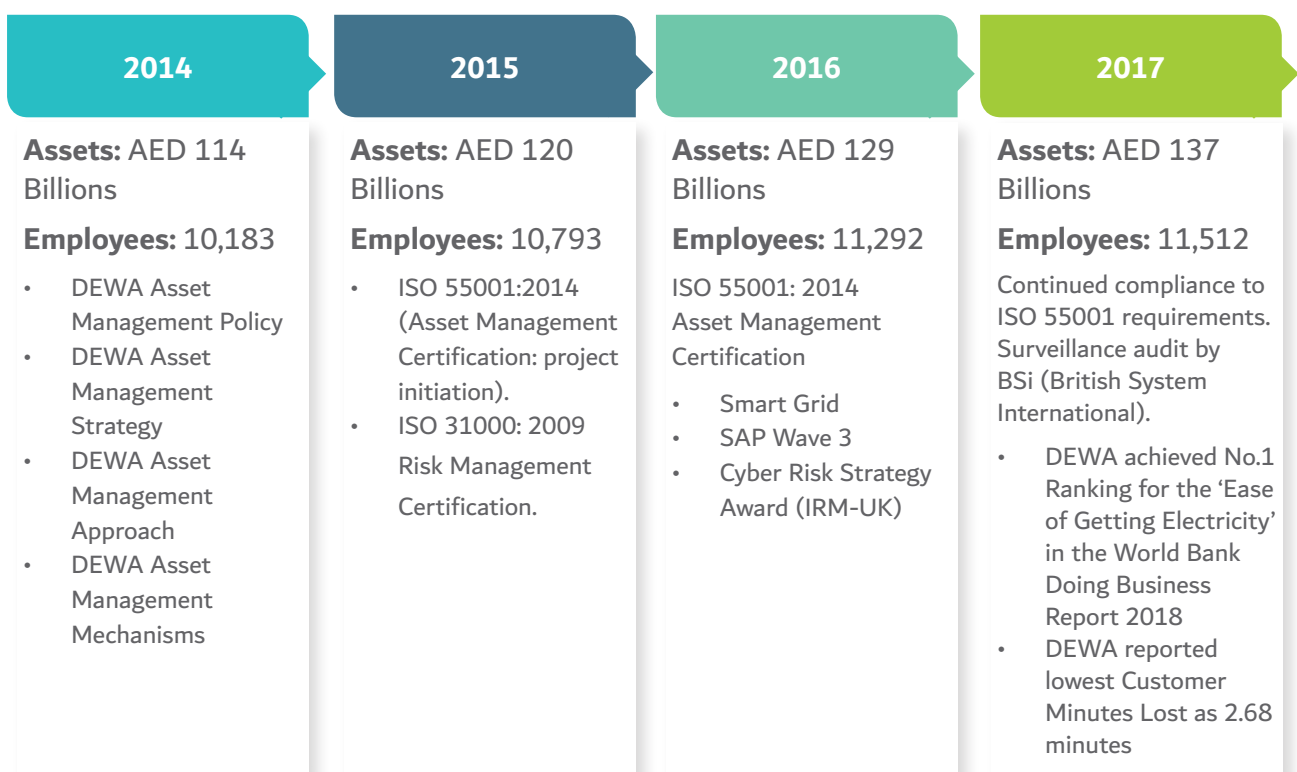
3.2 million
Population

DEWA ASSET MANAGEMENT JOURNEY

DEWA was the first government utility in the world to receive the ISO 55001:2014 certification for asset management in 2016, less than two years after the standard was launched.

The ISO 55001 standard, launched in 2014, sets an internationally recognised benchmark for integrated, effective management of assets. The standard sets specific requirements for establishing, implementing, maintaining and improving organisational asset management practices.

Compliance with this standard demonstrates DEWA's commitment to world-class asset management *for generations to come.*



COMMITMENT TO THE DELIVERY OF SUSTAINABLE, WORLD-CLASS SERVICES

DEWA is committed to the happiness of its stakeholders and promoting Dubai's vision through the delivery of sustainable electricity and water services at world-class levels of reliability, availability, efficiency and safety in an environment that nurtures innovation with a competent workforce and effective partnerships.



Commitment to the delivery of sustainable world-class services .

ASSET MANAGEMENT POLICY

Establishing an asset management policy was a critical milestone in DEWA's asset management journey. DEWA's asset management policy lays the foundation and sets the direction for its asset management programme.

The policy reinforces the commitment of DEWA's senior leadership to ensure supply of high-quality electricity and water at world-class levels of reliability, availability and sustainability through efficient, effective and economical management of its assets.

1. Leadership Commitment

Provide the necessary support and resources to achieve the asset management objectives.

2. International Standards

Pursue best practices and international standards for asset management.

3. Continual Improvement

Ensure implementation & continual improvement of asset management.

4. Sustainable Development

Consider sustainability requirements that are aligned with DEWA's policies, processes, plans and integrated management systems.

5. Life Cycle Value Optimisation

Ensure efficient and effective balance of asset management related costs, risks and performance, taking into consideration the life cycle of assets.

6. Culture and Awareness

Promote awareness of asset management policy among both internal and external stakeholders.

7. Legislative and Legal Compliance

Comply with all legislative, legal and other requirements pertaining to asset management standards.

ASSET MANAGEMENT FRAMEWORK

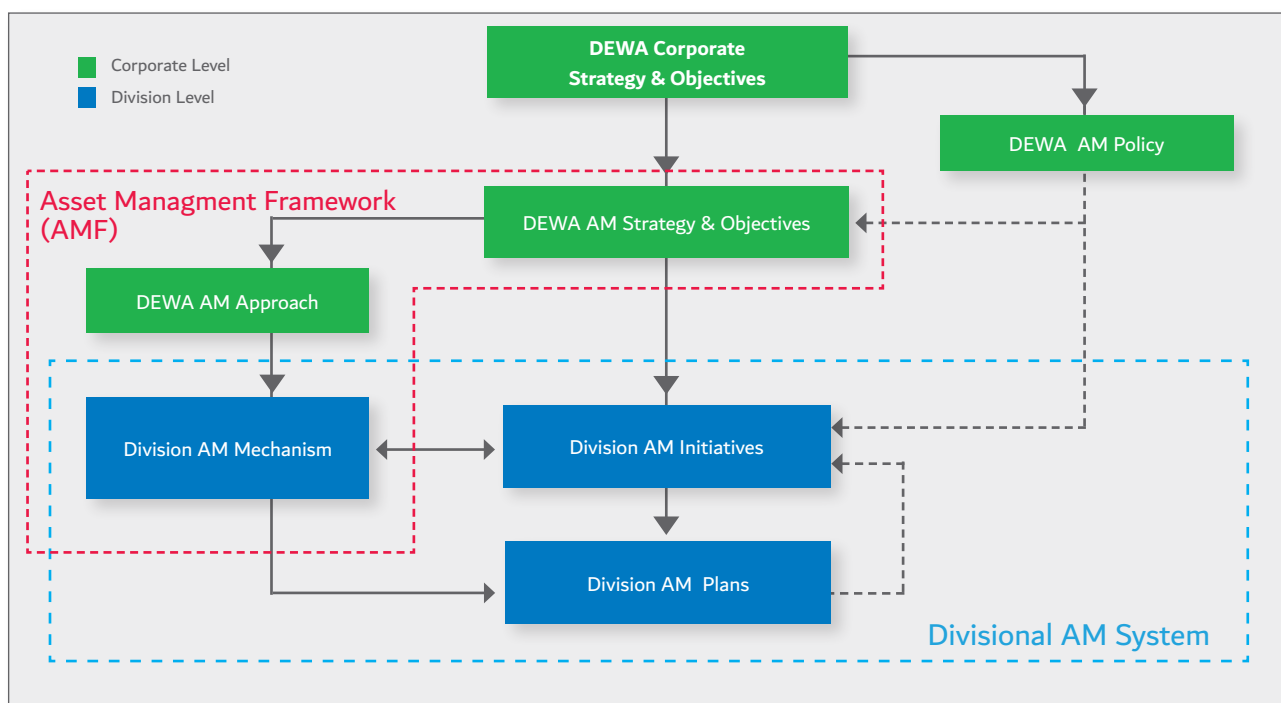
To support its Asset Management Policy, DEWA developed and implemented an Asset Management Framework (AMF) in line with the ISO 55001 standard. This AMF allows DEWA to manage its assets in a consistent and effective manner in pursuit of its corporate objectives.

The AMF encompasses DEWA's physical infrastructure related to power and water, all the asset management activities for this infrastructure (both those performed by DEWA and outsourced activities), and all the asset data related to this infrastructure.

The AMF has three key components: the Asset Management Strategy, Asset Management Approach, and divisional Asset Management Mechanisms.

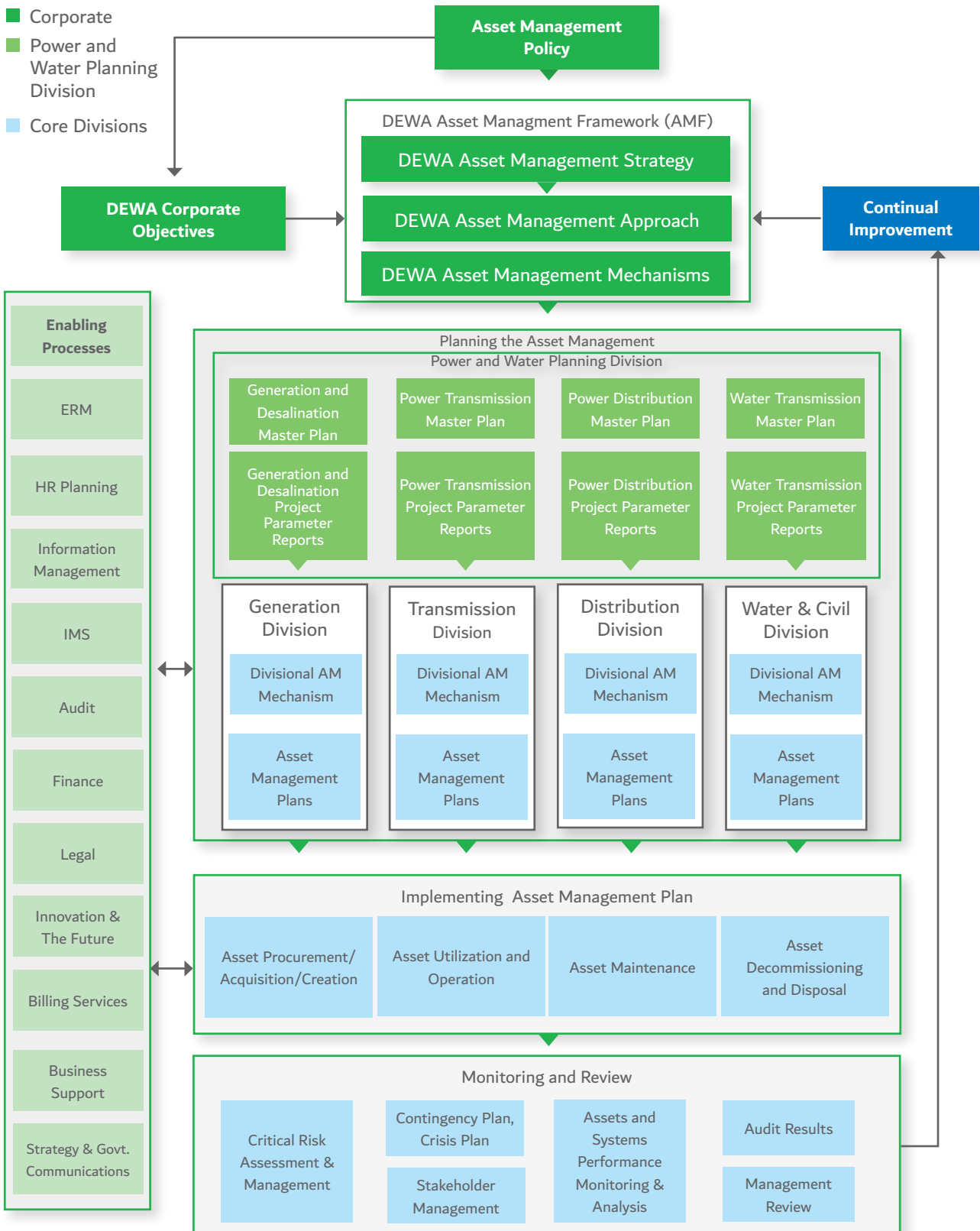
DEWA Asset Management Strategy	DEWA Asset Management Approach	DEWA Asset Management Mechanisms
High-level plan that outlines the asset management objectives and the linkage to the DEWA strategic plan.	Methodology for the implementation of the Asset Management Strategy across DEWA.	Details of the Asset Management System and processes within the core asset divisions.

Together, these components provide a comprehensive and integrated framework and the detailed plans, processes and procedures for risk-based, life cycle management of DEWA assets.



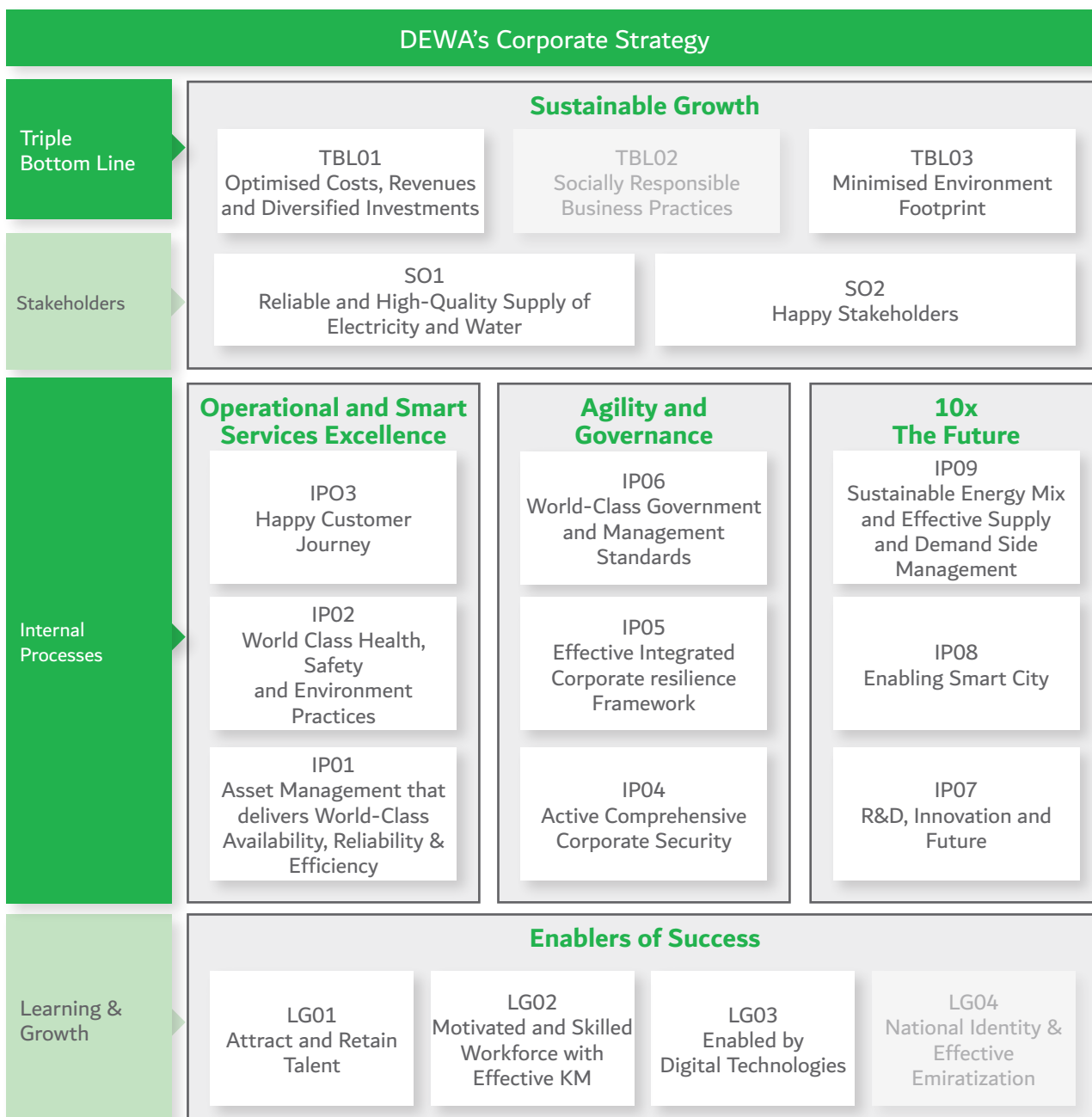
The asset management (AM) policy, strategy, approach and mechanisms are the basis for creating asset management plans.

The asset management plans, which are created by each core division—Generation, Transmission, Distribution and Water & Civil—define how specific asset groups will be managed throughout their life cycle to meet the asset management objectives.



DEWA ASSET MANAGEMENT STRATEGY

The Asset Management Strategy is effectively the bridge that connects the corporate strategy and objectives to the Asset Management System. For an asset-intensive utility such as DEWA, it is not surprising that 16 of the 18 corporate objectives, as shown below, are also asset management objectives.



DEWA's Corporate Strategy is the basis for its Asset Management Strategy and provides the strategic direction and context for asset management. The Corporate Strategy has four focus areas and 18 strategic objectives that provide a framework for creating value across all DEWA operations.

Building on the asset management objectives in its Corporate Strategy, DEWA's Asset Management Strategy encompasses 10 core elements.

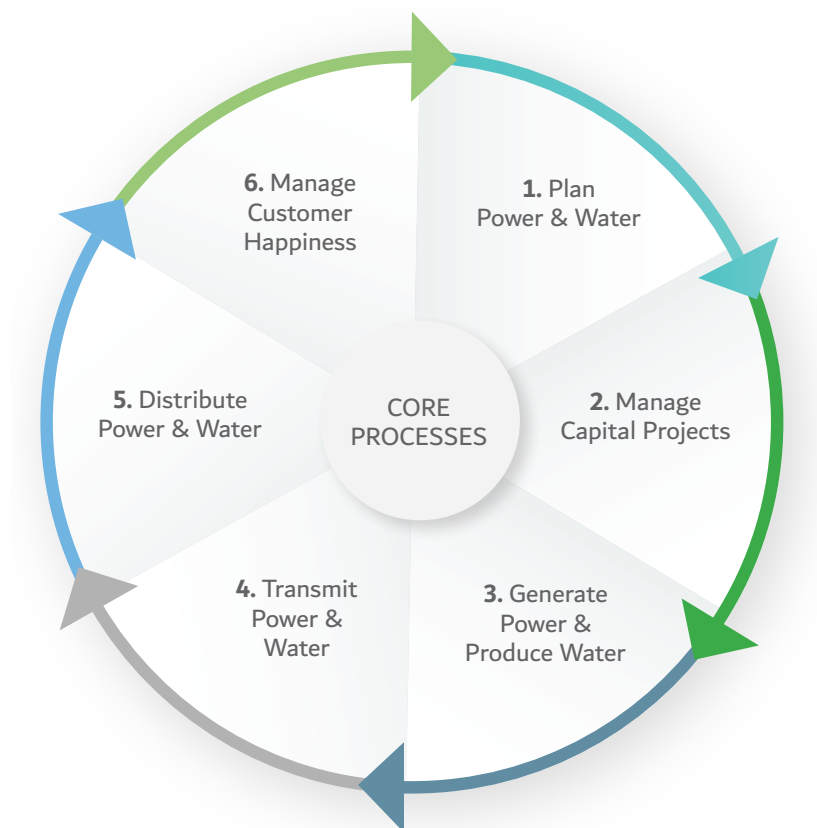


The Asset Management Strategy is a live document that is continuously evaluated for improvement and optimisation. There are periodic executive reviews of the strategy in addition to the active discussions on asset management at the technical and operational team levels.

ASSET MANAGEMENT MECHANISM

Each of DEWA's core divisions develops and implements its own asset management mechanisms, comprising specific initiatives for planning, support, operations, performance evaluation and improvement.

These divisional asset management mechanisms enable a holistic approach to the management of assets across the life cycle and contribute to achieving DEWA's strategic objectives by optimising asset value. These mechanisms have been fully integrated across DEWA's value chain and core business processes to enable the delivery of world-class electricity and water services. This value chain starts with Plan Power & Water Process, which is under the custodianship of the Power & Water Planning Division.



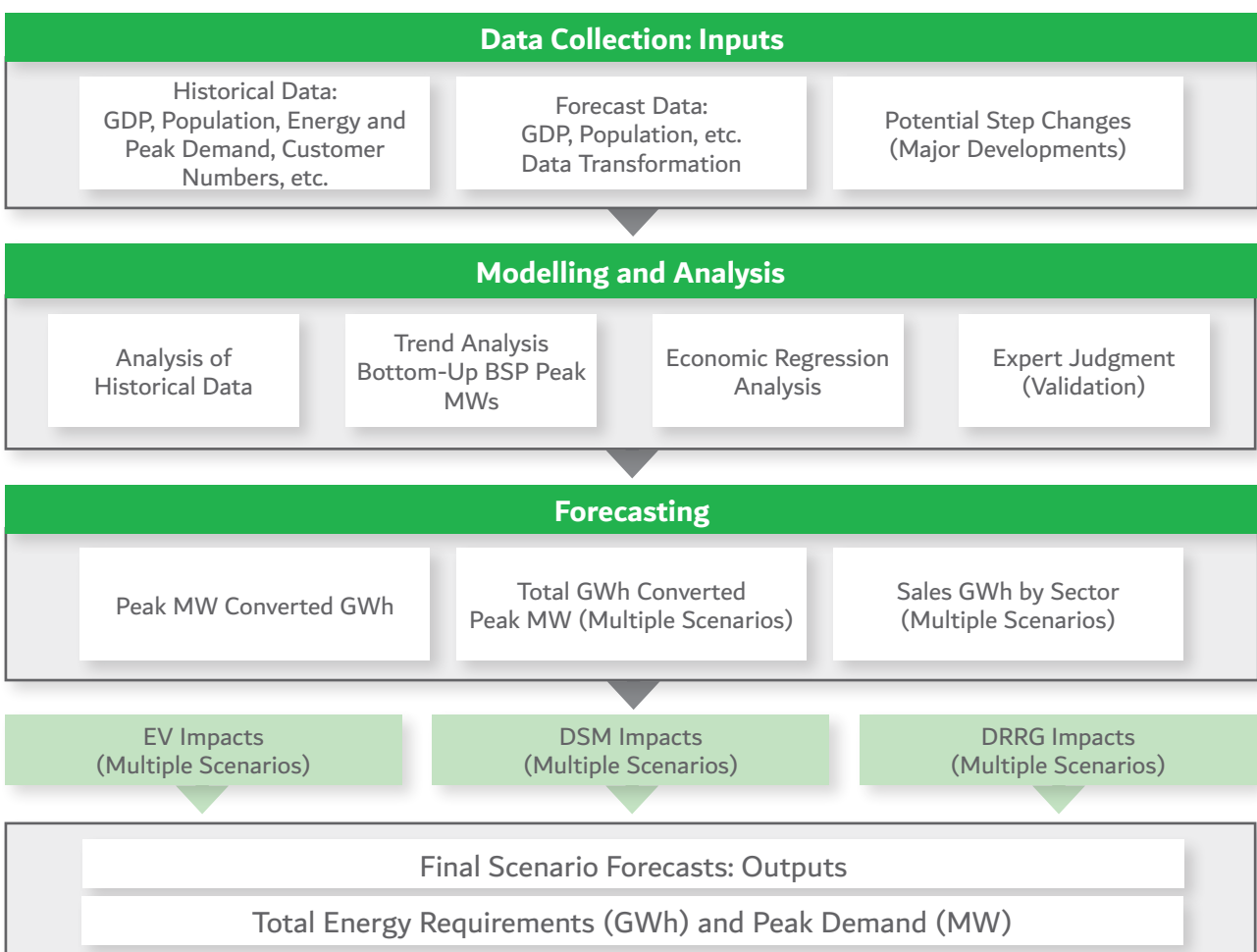
DEWA Core Process Map

POWER & WATER PLANNING

The Power and Water Planning Division (P&WP) is an enabler division that supports the core divisions in order to achieve DEWA's asset management objectives. P&WP's activities start with demand forecasting to meet the power and water requirements of Dubai. The demand forecast horizon is the year 2030 and forecasts are updated annually using recognised international practices and state-of-the-art tools, considering demographics and econometric growth and capturing the effect of future uncertainties through scenario planning. All DEWA's master plans are developed on the basis of these demand forecasts. P&WP's master plans provide infrastructure expansion plans for the power and water systems, including power generation and water desalination expansions up to 2030, power & water transmission network expansions up to 10 years and power distribution network expansion up to 5 years. Master plans are updated annually in order to meet Dubai power and water demand on time with a reserve margin at a world-class level of reliability, efficiency and safety, taking into consideration optimal resource utilisation. Accordingly, Project Parameters Reports (PPRs) are developed for all future system expansions, considering the appropriate lead time based on the master plans.

DEWA continues to demonstrate leadership in its planning function with a demand forecast accuracy greater than 95% over the last two decades; a key mitigating factor for risks to availability and reliability of water and power supply.

Power Demand Forecast

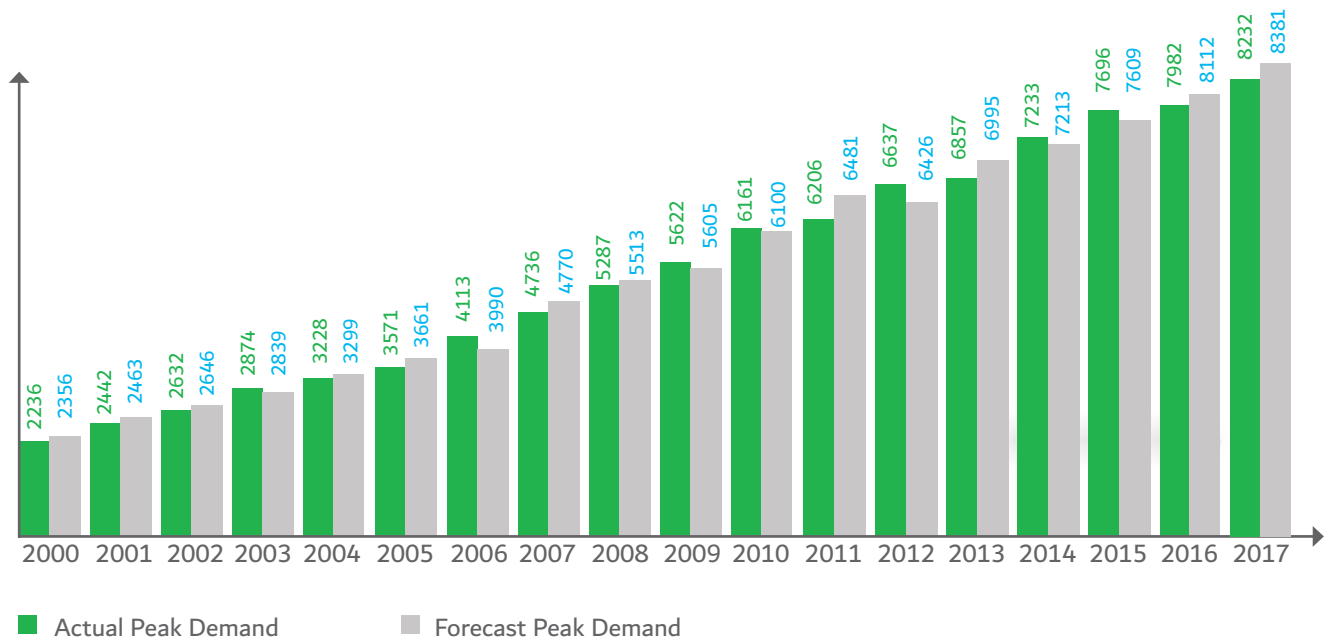


Water Demand Forecast



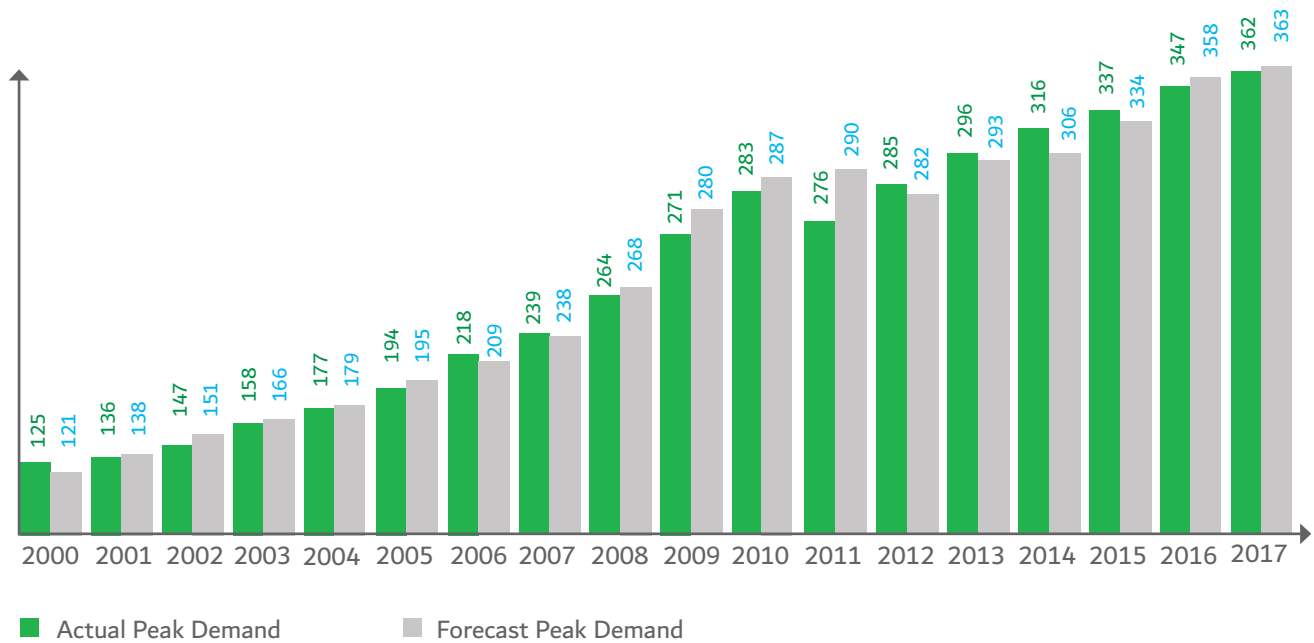
Power Peak Demand Actual vs Forecast (MW) 2000 - 2017

Actual peak electricity demand matches forecast with 95% accuracy in electricity peak demand forecasts since 2000.

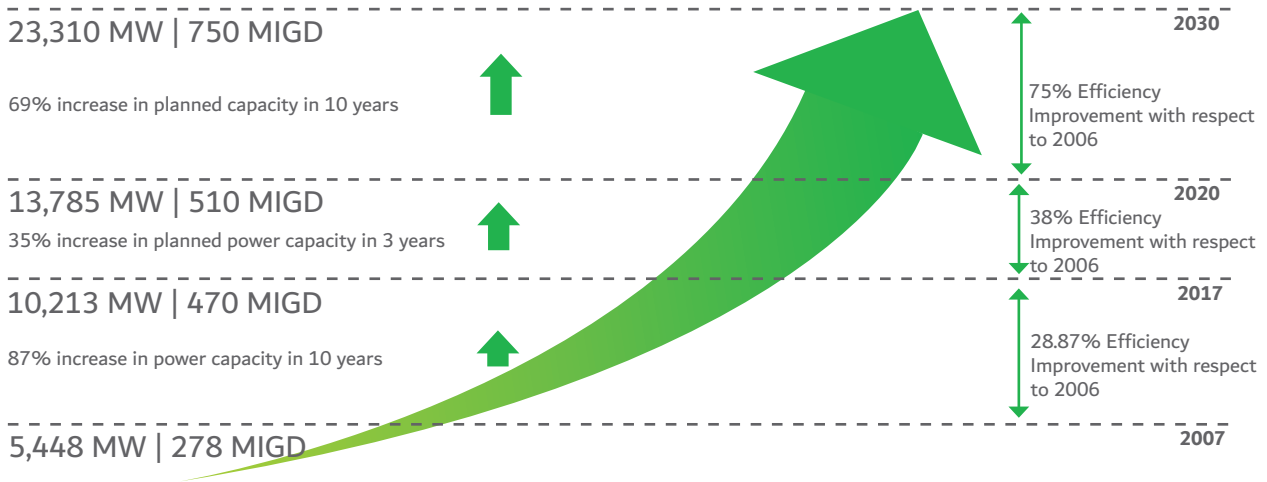


Water Peak Demand Actual vs Forecast (MIGD) 2000 - 2017

Actual peak water demand matches forecast with 95% accuracy in water peak demand forecasts since 2000.



GENERATION – POWER & WATER



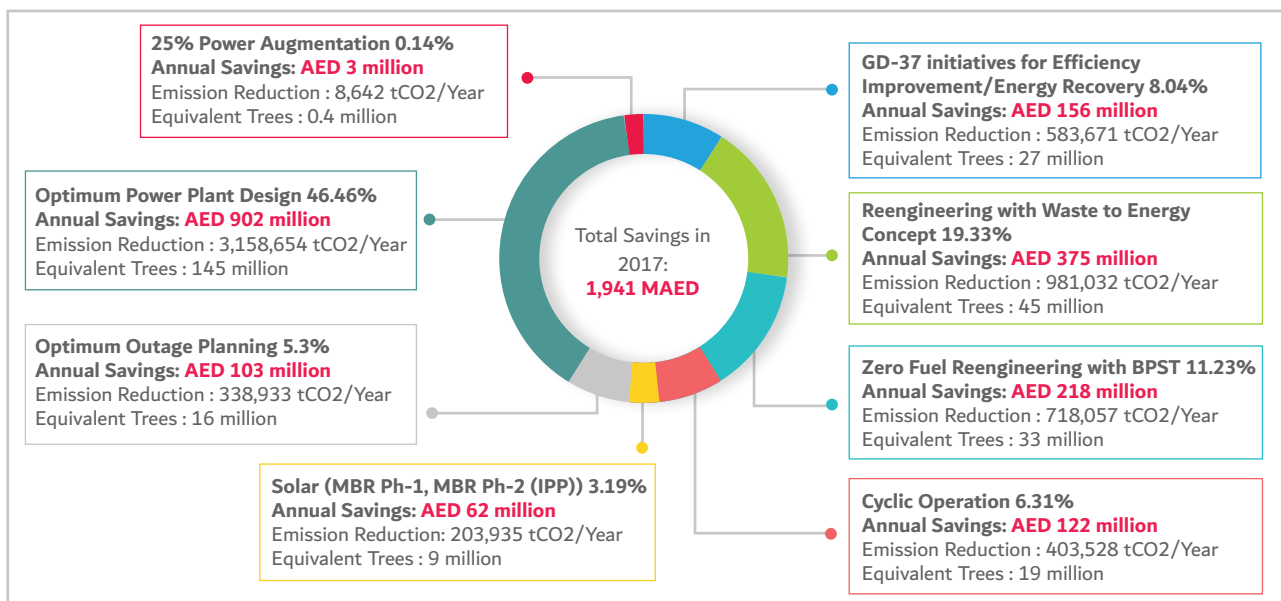
Efficiency and capacity growth of DEWA power generation and water production assets

Over the last 11 years, DEWA nearly doubled its installed power capacity, improved efficiency by 28.87% and surpassed European and North American utilities in both availability and reliability.

Through its focus on optimisation of Efficiency Improvement programmes, DEWA expects to realise 75% improvement in efficiency by 2030 with respect to 2006, resulting in savings of AED 70 Billions.

Segmented Financial Savings & Emission Reduction (2017)

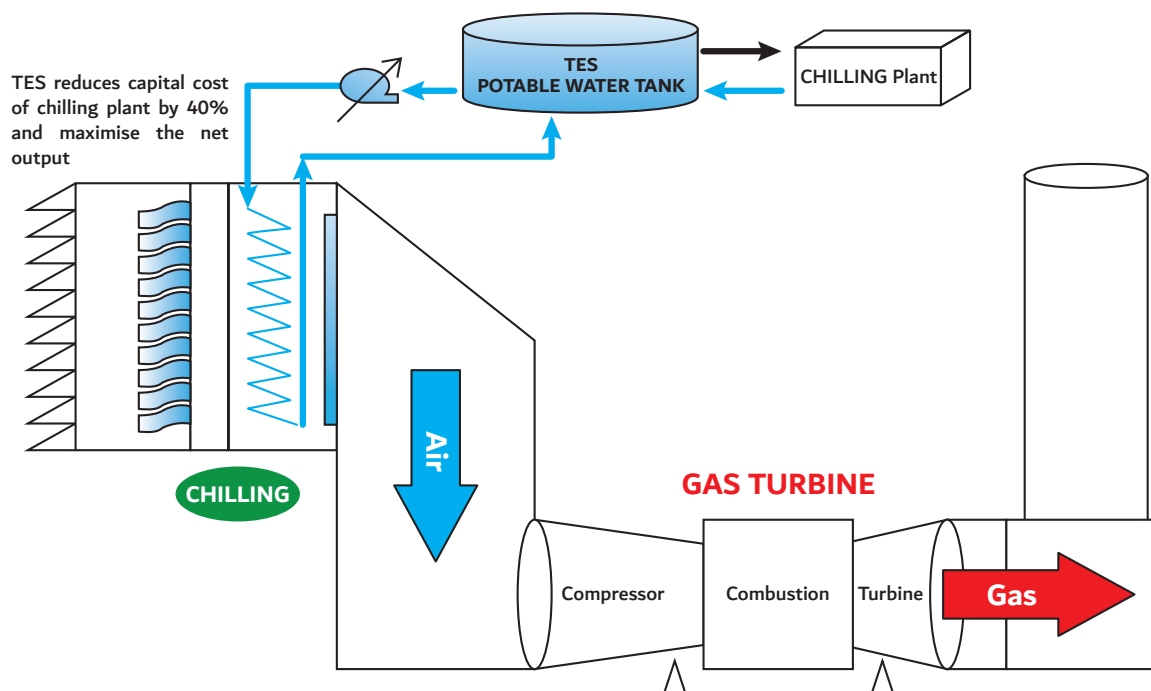
The 28.87% improvement in efficiency in 2017 compared with 2006 stems from investments in technical innovation and effective core processes. Thus, for the same amount of fuel input, DEWA is generating 26% more power and producing 70% more water effectively 'fuel-free.' This 28.87% improvement in efficiency in 2017 with respect to 2006 is equivalent to savings of 1,941 AED Millions, with contribution from a number of key initiatives:



THERMAL ENERGY STORAGE AND TURBINE INLET AIR COOLING (TESTIAC)

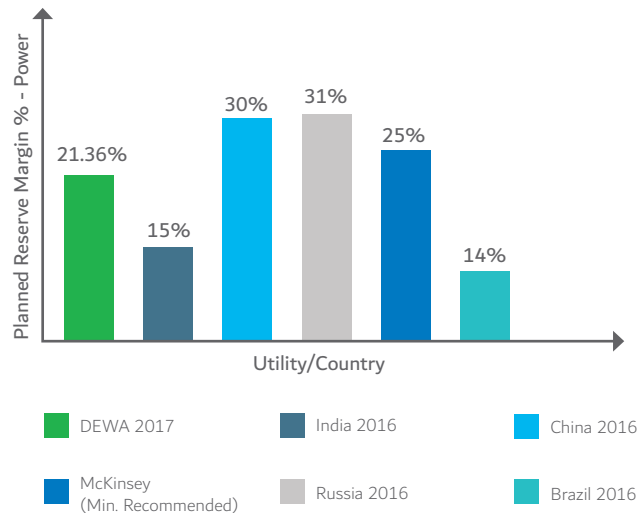
Power augmentation technology compensates for the loss of turbine capacity and efficiency when ambient air temperatures rise significantly above ideal design conditions. The challenge is to generate 22,000 tons of cooling capacity to reduce inlet air temperatures in summer. To achieve this, DEWA installed a refrigeration system called Thermal Energy Storage and Turbine Inlet Air Cooling (TESTIAC). By cooling the ambient air, the density of the inlet air increases, increasing the air mass flow rate at the intake and hence increases the efficiency of the gas turbine.

The benefit of this system is that it allows DEWA to generate the same output of electricity while using less fuel and thus reducing greenhouse gas emissions and improving the life-cycle performance. The impact can be quantified as an increase in plant capacity of 111 MW and yearly reduction in greenhouse gases (52,157 tons of CO₂, 3.5 tons of CO, 48 tons of NO_x & 1.6 tons of SO_x) equivalent to planting 2.4 million trees. This project won the Dubai Government Excellence Program (DGEP) award for the Distinguished Technical Project in 2011. It was also a winner of Project of Year award in Innovation by MEED Quality Awards for Projects 2016.

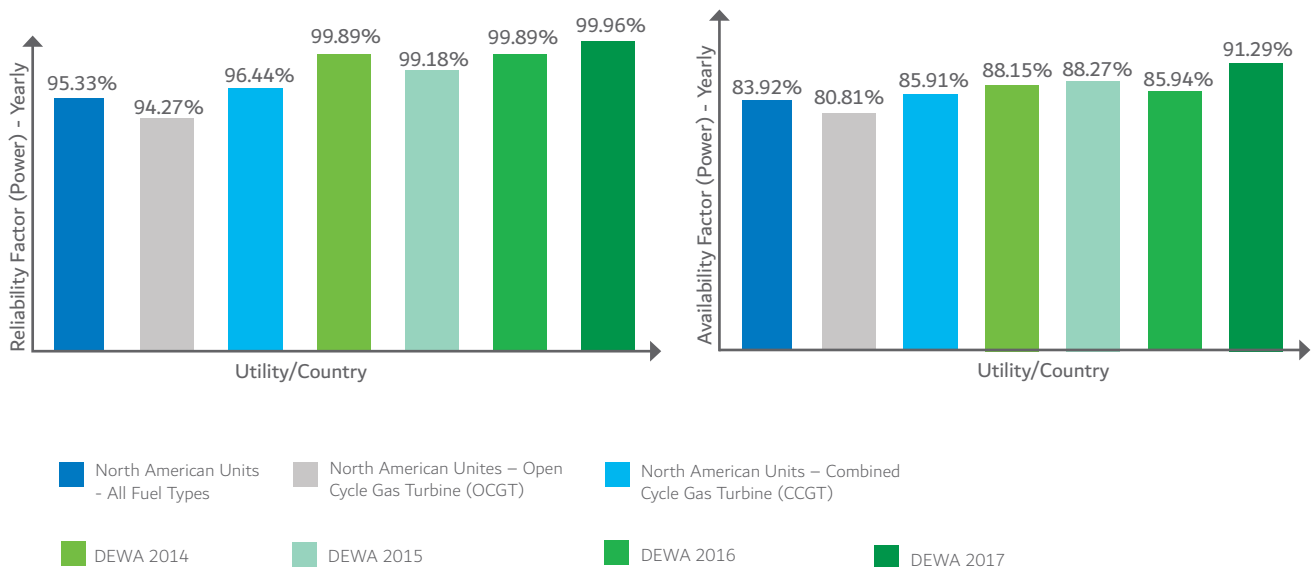


GD Asset Performance

DEWA maintains world-class reserve margin for power generation, thus consistently staying ahead of demand through effective risk management and commitment to powering Dubai's growth.



DEWA leads global utilities in both the reliability and availability of its power generation assets. This maximises asset value and optimises operation and maintenance cost.



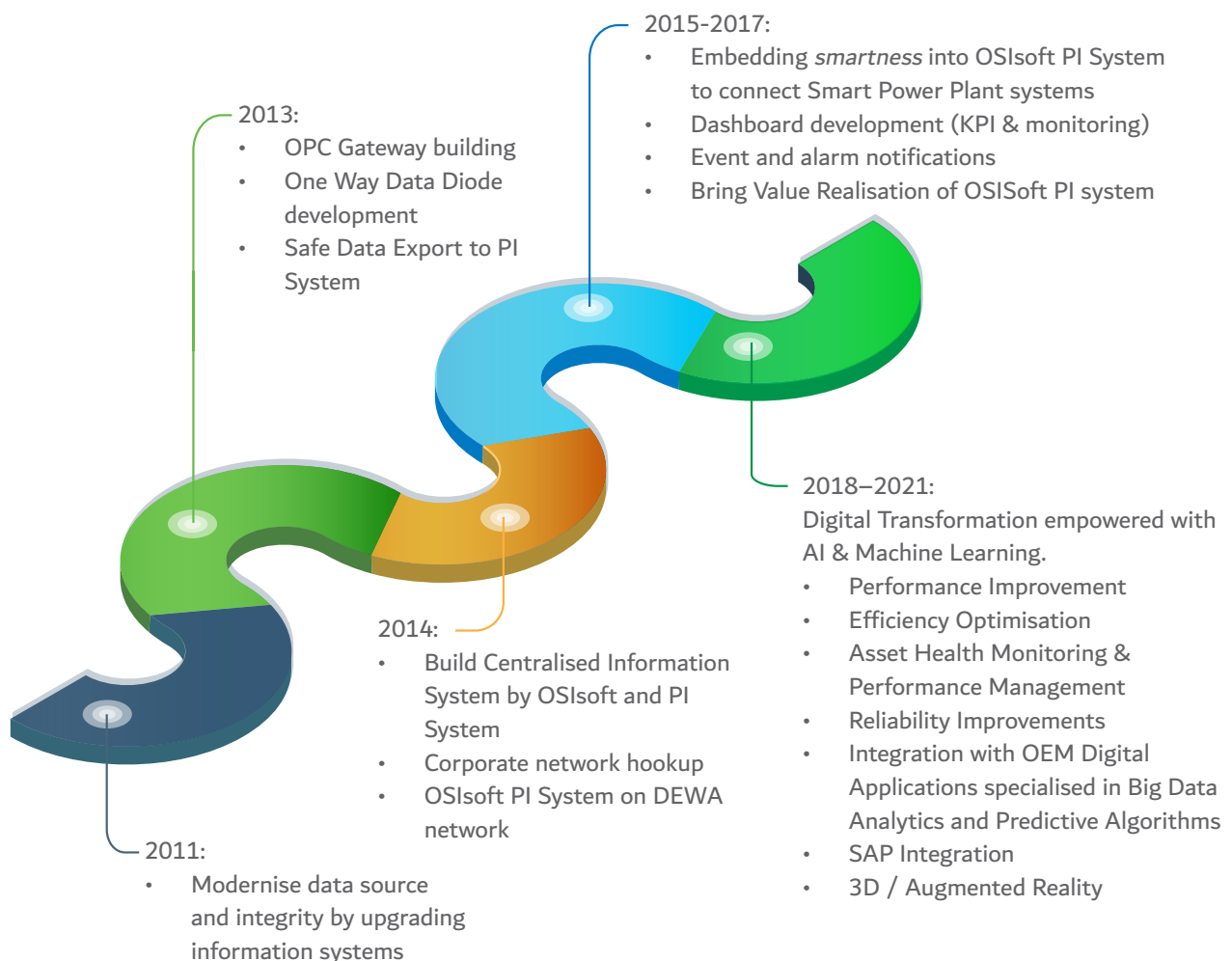
Generation Division Asset Management KPIs - 2017 Results

91.29% AVAILABILITY FACTOR (POWER) - YEARLY	88.90% AVAILABILITY FACTOR (WATER) - YEARLY	1.81 MILLION TONS AMOUNT OF CO₂ REDUCED	9,199 BTU/kWh GROSS HEAT RATE - YEARLY
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SMART POWER PLANTS

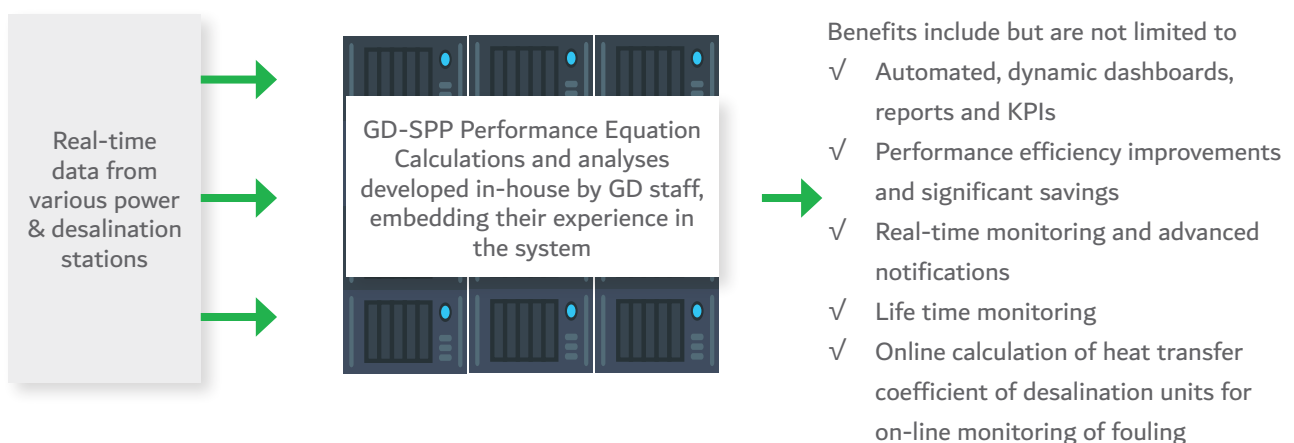
DEWA's Generation Division (GD) continues to optimise asset performance throughout the life cycle of assets. The raw data of assets in the form of real time information, signals, alarms, failures etc. are important when analysing asset performance. It poses significant operational challenge as DEWA operates nine different generation stations (eight running on fossil fuels and one solar power park). The stations are also separated physically and each have different original equipment manufacturers (OEMs) and configuration, that include co-generation, combined cycle, open cycle, photovoltaic solar, multi-stage flash (MSF) desalination and reverse osmosis (RO) desalination.

New projects such as clean coal and concentrated solar power are expected to come online soon. In addition, each station has an independent or isolated control room, which makes collecting and aggregating raw data a significant challenge. DEWA developed a solution based on transitioning to a Smart Power Plant (SPP) system. The digital transition journey of smart power plant was originated by Generation Division in 2011 and reached Knowledge Phase by 2017. Digital Transformation is expected to be completed by 2021.



Once the transition to SPP is complete, it will function as a data centre with real-time and historical data from all stations, plants and Distributed Control Systems (DCSs) operated by DEWA. The SPP will generate automated reports. The main achievement of SPP is that it will facilitate the transition from data to information to knowledge.

Generation Division's approach to implement SPP:

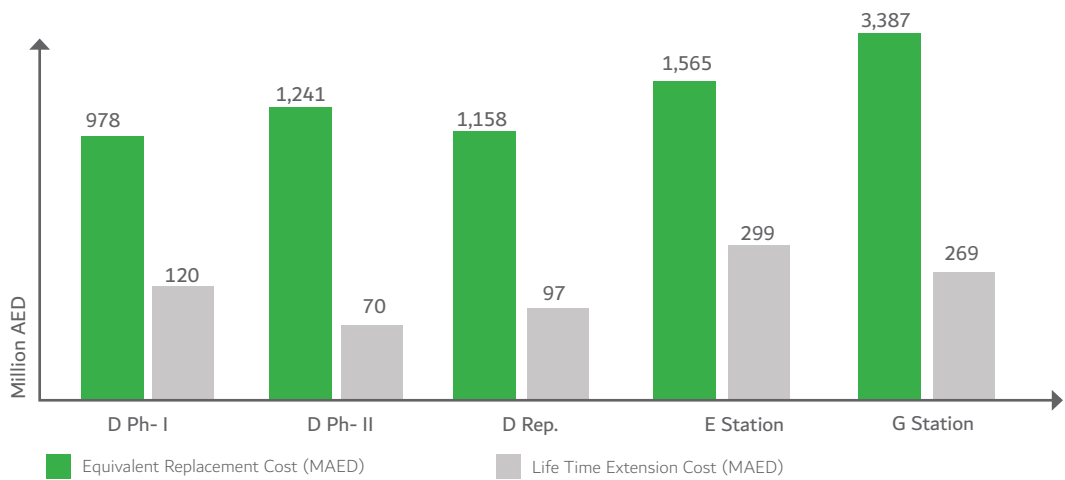


LIFE TIME EXTENSION (LTE) THROUGH REMAINING LIFE ASSESSMENT (RLA)

RLA studies are conducted with an intention to extend the service life of assets in existing plants covered under DEWA’s core process (Generate Power & Produce Water). Life Time Extension (LTE) works are indentified for these assets and systems and necessary actions have been taken to meet the LTE requirements, in order to achieve the target life of 50 years for conventional steam plants and 40 years for cogeneration and combined cycle plants. This strategic approach offers the following benefits:

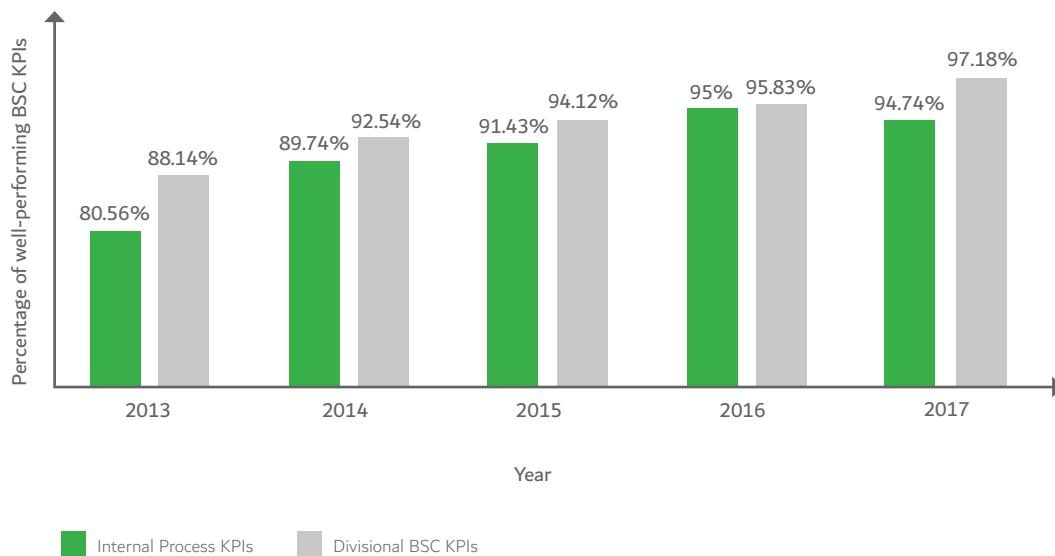
- 1. Significant Cost Savings (Cost for LTE measures is considerably lower than replacement option, in Plant-1, able to extend plant lives at ~10% of replacement cost for new similar capacity station.)
- 2. Increased availability by avoiding outage for each station (approximately 4 years of lost opportunity for production) which includes decommissioning of an existing station, installation and commissioning of a new replacement station.
- 3. Increased Reliability.

This is illustrated by the following chart:



PROCESS PERFORMANCE - HIGHLIGHTS

The effectiveness of Generation Division's core processes could be highlighted through the results of internal process objectives, measured in terms of BSC (Balanced Score Card) KPIs. The strategic objectives are cascaded and aligned to DEWA strategic objectives through a contributory cascading approach, thus ensuring vertical alignment. Generation Division has consistently exceeded in its performance, and in 2017 achieved 97.18% in terms of percentage of well-performing BSC KPIs, supported by 94.74% achievement of internal process KPIs.



TRANSMISSION POWER

DEWA's Transmission Power Division delivers the power from Generation to Distribution as well as directly to critical urban infrastructure-related consumers (including Dubai Metro and Dubai Airports) while ensuring the highest standards in terms of reliability, availability, efficiency, safety and sustainability in line with global best practice.

Transmission Power Division fulfills its mandate through:

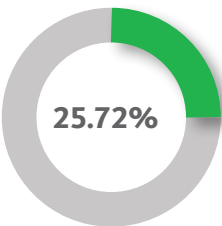
- Real-time operation of DEWA network, managing outages and operational studies
- Utilising state-of-the-art SCADA, telecommunications and tele-control systems
- Effectively managing various stages of the asset life cycle
- Providing a secured network through a well-established protection system
- Maintaining Transmission assets using RCM techniques to ensure high reliability and excellent asset condition
- Ensuring better quality of Transmission assets by adapting international standards in engineering and commissioning

Despite its rapid asset growth, DEWA Transmission has delivered 99.99998% uninterrupted supply since 2013. DEWA's transmission system has expanded almost tenfold over the past 20 years and is now valued at AED 35 billion or 25.72% of DEWA's total asset value. At the same time, DEWA transmission line losses are as low as 3.3% or about half the average in Europe and North America.

World-Leader in Power Transmission

..... 10-FOLD INCREASE in Transmission assets since 1997	 99.99998% WORLD-LEADING transmission system availability	 FIRST IN MIDDLE EAST & North Africa to implement RCM for power transmission
..... TOP 10 LOWEST electricity line loss of 3.3%	 68MWhr LOAD LOSS & uninterrupted supply since 2013	

Transmission Power Assets



Transmission Asset Value
represents 25.72% of
DEWA's total asset value



132 kV
236 SUBSTATIONS



400 kV
21 SUBSTATIONS



402.718 km of 132 kV overhead
transmission lines

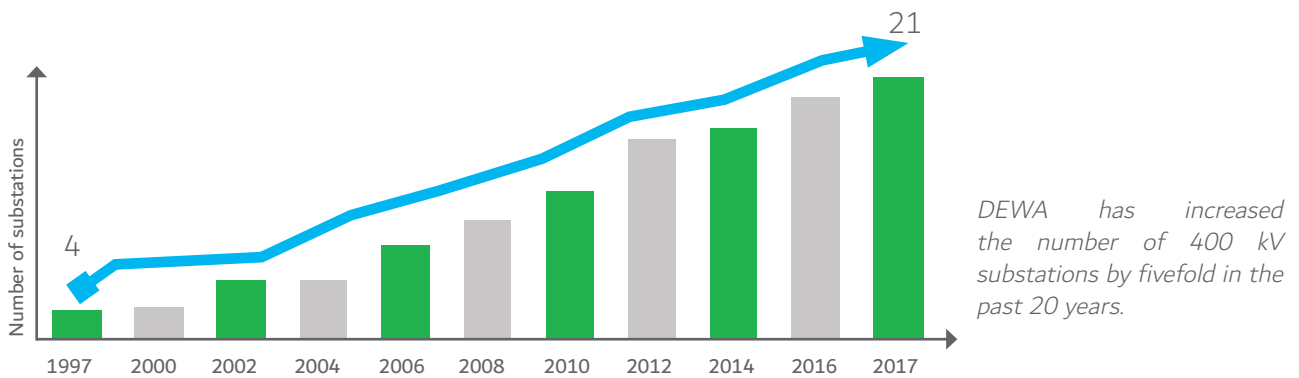
1,124.56 km of 400 kV overhead
transmission lines



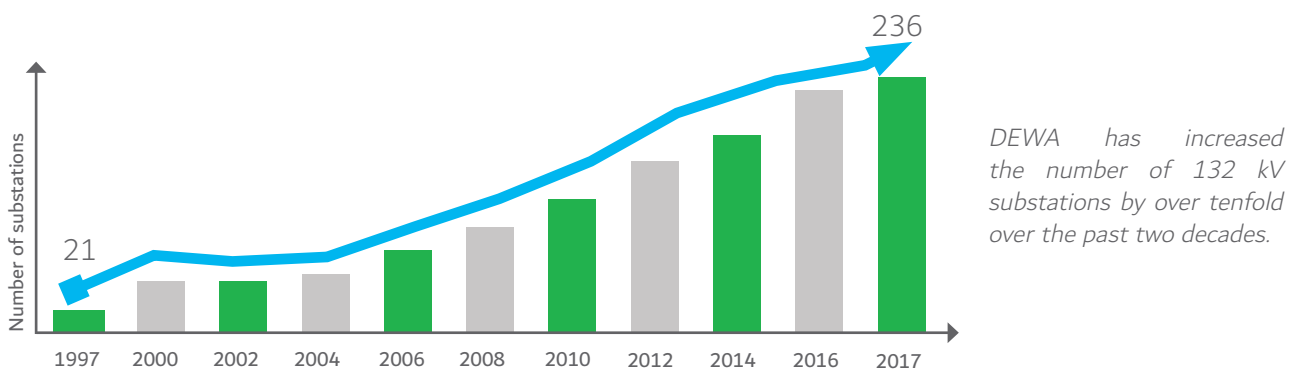
1,959.283 km of 132 kV transmission cables

22.192 km of 400 kV transmission cables

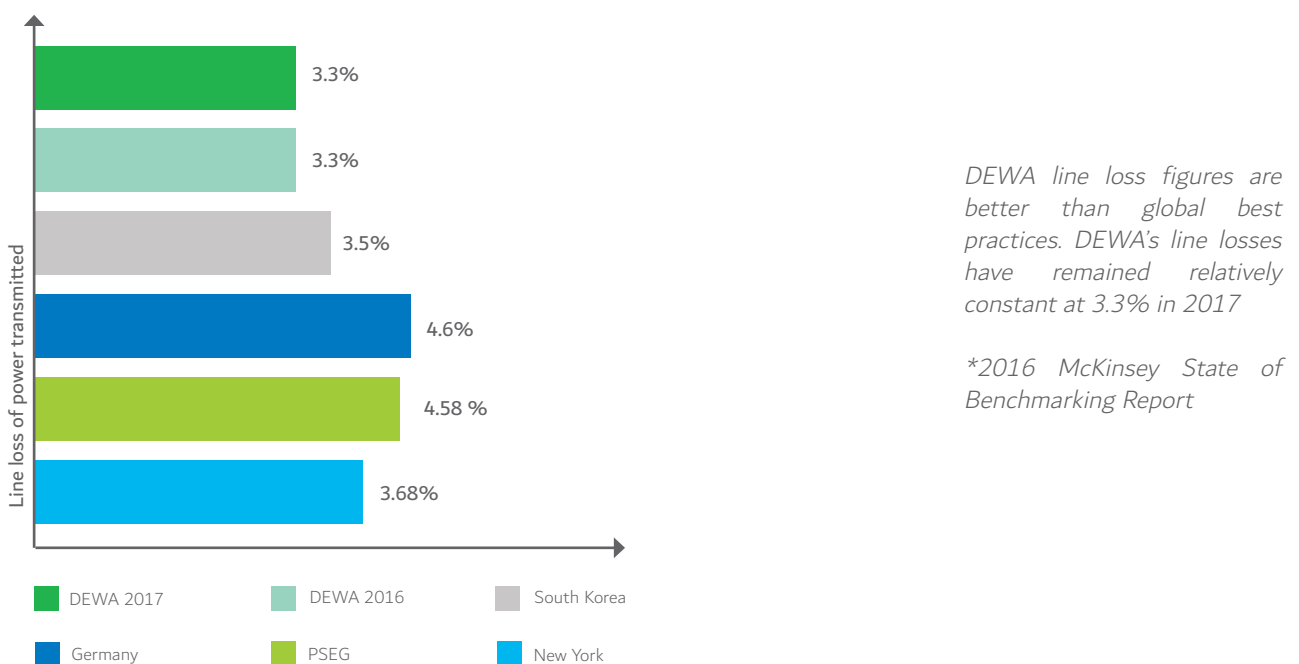
Fivefold increase in 400 kV substations in past 20 years



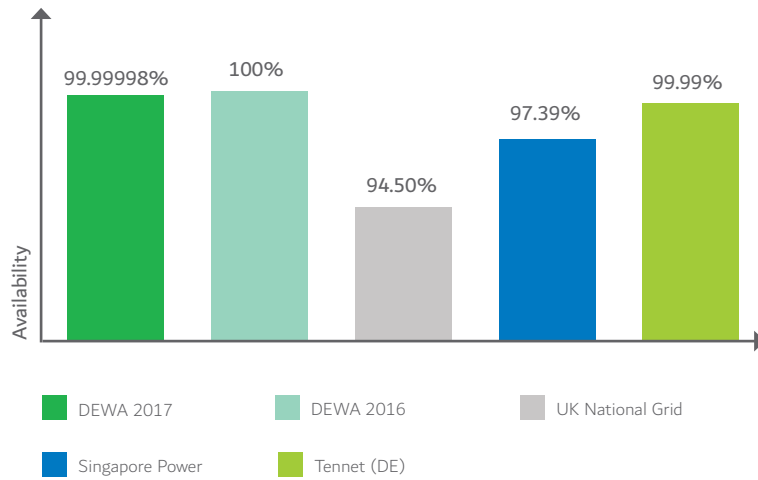
Tenfold growth in 132 kV substations over the past two decades



Leadership in the management of line losses



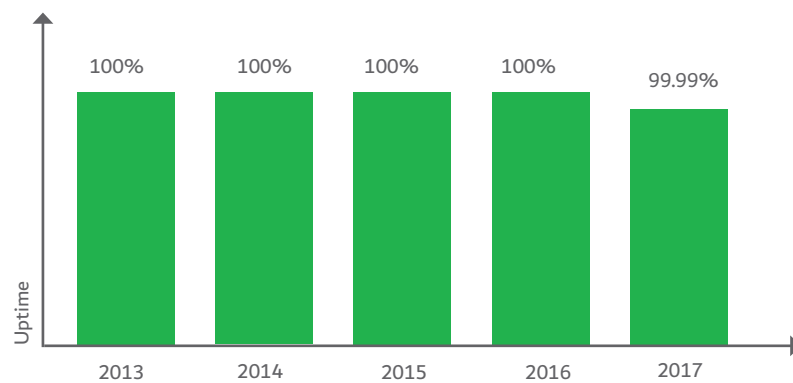
DEWA Transmission System Availability



DEWA's transmission system is always available. Transmission recorded 99.99998% availability in 2017, surpassing the leading utilities in the world.

**McKinsey and Company, 2016*

DEWA Smart SCADA systems: online at all times



DEWA Transmission SCADA Systems have allowed continuous monitoring, control and automation.

Transformer Oil Laboratory (OIL Lab)

DEWA OIL Lab provides high-quality testing services that are performed professionally to produce precise results and analyses in compliance with the requirements of the ISO 17025:2005 standard. Obtaining the ISO 17025:2009 certification signals to the market DEWA's commitment to the highest quality standards for oil testing. The scope of the OIL Lab tests comprise 12 parameters to measure the quality of the oil in transformers. The laboratory has obtained four certificates of excellence for transformer oil testing, in efficient test performance, from the International Institute of Laboratory Studies in the Netherlands, which is a certified international authority in efficiency of testing performance. The four certificates are:

- Excellence Certificate for Proficiency Testing (PT): Furanics on transformer oil (Used)
- Excellence Certificate for Proficiency Testing (PT) of transformer oil (New)
- Excellence Certificate for Proficiency Testing (PT) of transformer oil (Used)
- Excellence Certificate for Proficiency Testing (PT) of Dissolved Gas Analysis transformer oil

DISTRIBUTION POWER

Distribution Power is the core division responsible for the last-mile distribution of power from the transmission stations to Dubai's 2.7 million residents and approximately 200,000 commercial customers spanning approximately 3,000 industries. This division owns and operates an extensive urban and rural electricity distribution network, comprising over 32,000 substations as well as underground and overhead power lines. Distribution Power core processes include:

- Managing Connection Services
- Managing Distribution On-going Projects
- Operating Distribution Network
- Maintaining Distribution Network
- Managing Distribution Asset Rehabilitation

DEWA's Distribution Division has recorded a world-class performance, ranked by the World Bank as number 1 in the world for Getting Electricity in its 2018 Doing Business Report.

DEWA Distribution Power Assets

As of 31 December 2017, the Distribution Power (DP) Division had the highest number of assets in DEWA at 124,328 assets. This is equivalent to around AED 15 billion, representing about 10.94% of the total value of DEWA's assets. DP assets are broadly classified as shown in figure below:

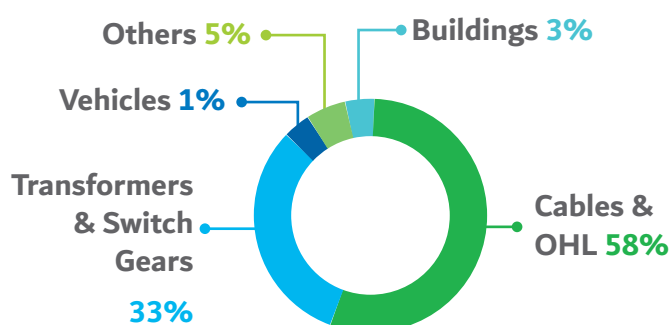


Figure: Percentage of segmentation of Distribution Power (DP) assets.

World-Class Distribution (2017 figures)



132 kV
236 SUBSTATIONS



33 kV
104 SUBSTATIONS

Overhead lines: 113 km
Cables: 2,075 km

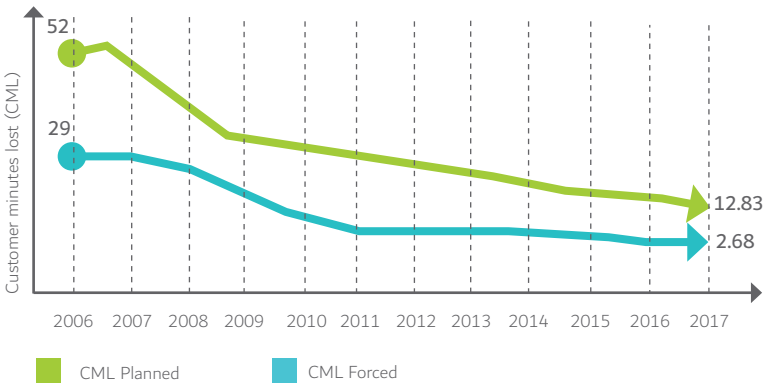


11 kV
33,763 SUBSTATIONS

Overhead lines: 616 km
Cables: 30,917 km

These networks are operated on a continuous basis from two central control rooms in Al-Warsan & Al Qusais. The peak load of Dubai in 2017 was 8232 MW.

**World-Class Reliability in Power Distribution to End Users:
DEWA customers receive more reliable power than people in Europe or North America.**



DEWA Customer Minutes Lost (CML) was only 2.68 minutes for forced outages in 2017, compared to 8.9 minutes in Consolidated Edison (one of the leading US utilities).

DEWA Distribution has implemented Reliability Centred Maintenance (RCM) approach since 2016 for secondary substations, which resulted in significant decrease in the CML-Planned of routine maintenance outages (25%).

Excellence in Power Distribution Asset Management

CML (FORCED)	CML (PLANNED)	SAIFI (FORCED)	SAIFI (PLANNED)
2.68 minutes	12.83 minutes	0.100%	0.154%

ELECTRICITY

Technical Complaints 0.46%

#1

WORLD BANK

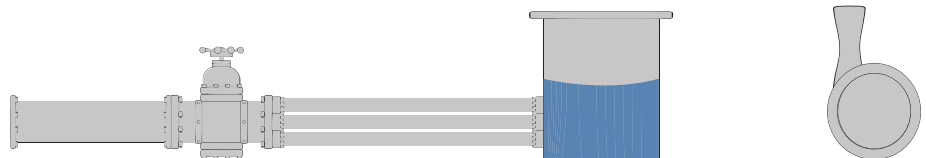
Getting Electricity Ranking

WATER AND CIVIL

DEWA's Water & Civil Division owns and operates extensive water storage, transmission and distribution assets. This includes the development, construction, operation, supervision and maintenance of the water network using Smart SCADA systems.

This division also implements and supervises new construction works and maintenance of the main DEWA civil projects.

Development of Water & Civil's infrastructure assets over the years



Year	Water Transmission Pipelines	Water Distribution Pipelines	Reservoir Storage	Pump Station
2000	848 km	4,018 km	267 MIG	
2005	1,193 km	5,703 km	302 MIG	existing stations:15
2010	1,878 km	8,158 km	550 MIG	existing stations:23
2014	2,156 km	8,967 km	767 MIG	existing stations:27
2015	2,242km	9,219 km	829 MIG	existing stations:25
2016	2,242 km	9,432 km	818 MIG	existing stations:25
2017	2,282 km	9,942 km	818 MIG	existing stations:25

Installed Capacity of pump stations in 2017 is 742.7 MIGD (WTP master plan 2017)

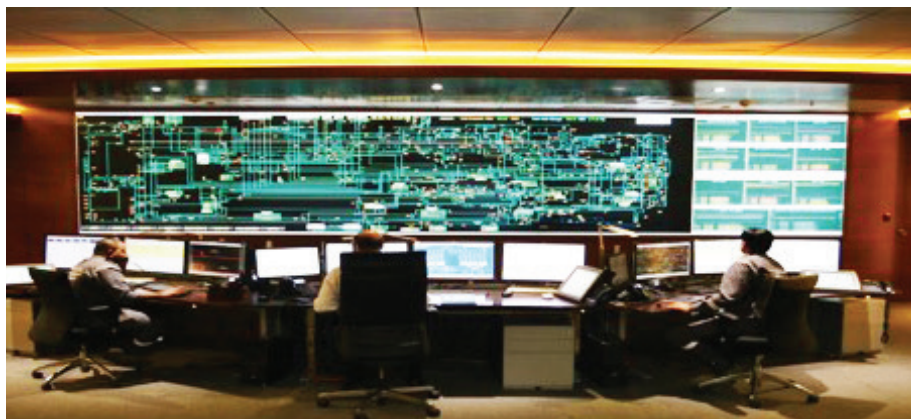
INNOVATIVE AND SUSTAINABLE INITIATIVES THAT IMPROVE ASSET LIFE CYCLE MANAGEMENT

Unaccounted for Water (UFW) Improvement Programme

The programme includes leak detection, meter and network audits, and meter replacement projects. The programme impact is significant as it detected 594 leaks, resulting in savings of 268 MIG, equivalent to AED 10.77 millions in 2017 alone. DEWA's efforts have resulted in consistent year-on-year reduction in UFW, reaching an all-time best of 7.1% in 2017.

Water Control Centre

A comprehensive real-time water management system that helps manage end-to-end transmission of water. The SCADA system covers over 2,000 km of transmission water network, 19 pumping stations, 7 reservoirs, and over 6,362 field devices. The system is both reliable and expanding, achieving availability of 100% and expanding 45% since 2012.



Advanced Metering Infrastructure (AMI)

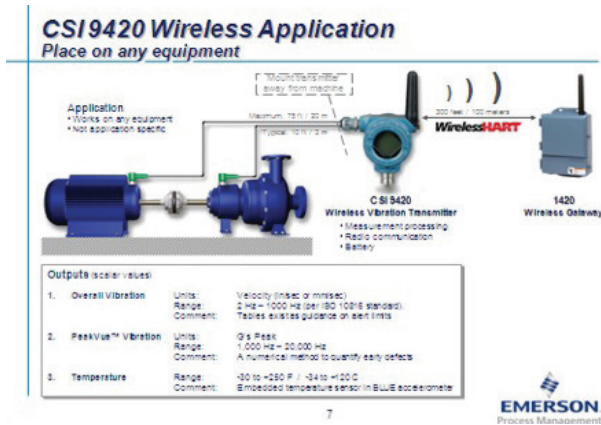
AMI is one of DEWA's three Smart Grid initiatives, alongside Shams Dubai and Green Charger. AMI monitors water flow and behaviour continuously. As of 31 December 2017, DEWA had installed 490,790 domestic smart water meters representing 70% of all installed meters and 8,263 AMI bulk water meters, which is 100% of all installed bulk water meters.





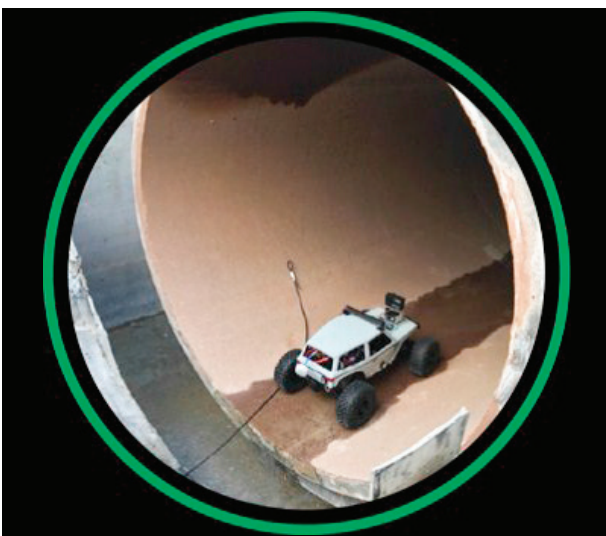
Variable Frequency Drive (VFD)

VFDs convert fixed speed motor drives to variable speed motor drives. They represent the latest technology for asset management of pumps and can deliver up to 40% energy savings per year compared with fixed speed, which in turn, reduces operating costs and motor failures, thereby increasing motor life.



Remote Condition Monitoring and Assessment

This technology monitors the condition of pumps continuously (24/7) achieving 40% reduction in maintenance cost and an increase in asset life. DEWA plans to implement online condition monitoring for 11 pump stations by 2020.



CCTV Car

This is a rover that can be remote-controlled using a smart phone, used to inspect water pipes to identify existing technical problems and those that could be expected in the future. The inspection of 94.7 km will be completed by the end of 2019, and is expected to generate savings of AED 2.7 millions. This initiative was awarded Best Innovative Idea in DEWA in 2016, and the employee who developed the initiative, Yousuf Al Burai, won the Innovative Employee award at the Dubai Government Excellence Program (DGEP).

World-Class Water Supply

7.1% REDUCTION

Reduce in UFW in 2017 (world-leading technology for leak detection, using Smart Meters).

45% INCREASE

in Smart SCADA assets since 2012 for real-time monitoring and control

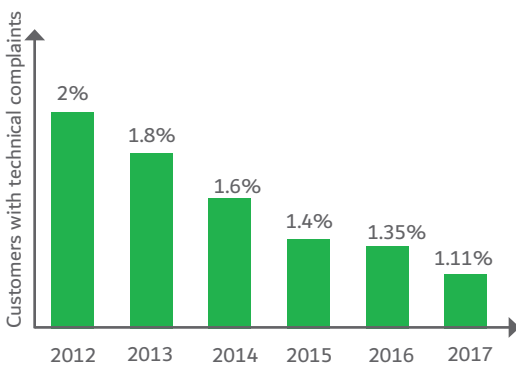
100% SMART

Water Meters (AMI) by December 2019

100% PORTABLE

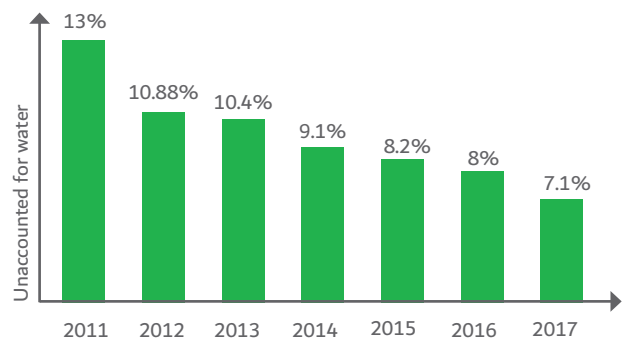
water quality assurance

Minimising water technical complaints, maximising customer happiness



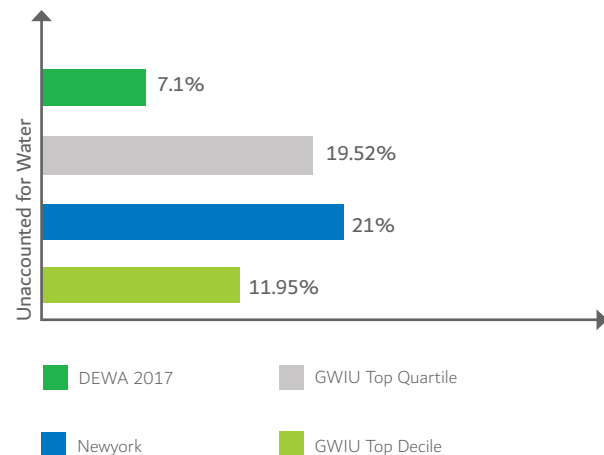
DEWA's investment in its water assets has reduced the % of customers having water-related technical complaints to 1.11% in 2017

Taking the lead in eliminating unaccounted for water



DEWA lost only 7.1% of water in its transmission and distribution system.

Global Leadership in Unaccounted for Water

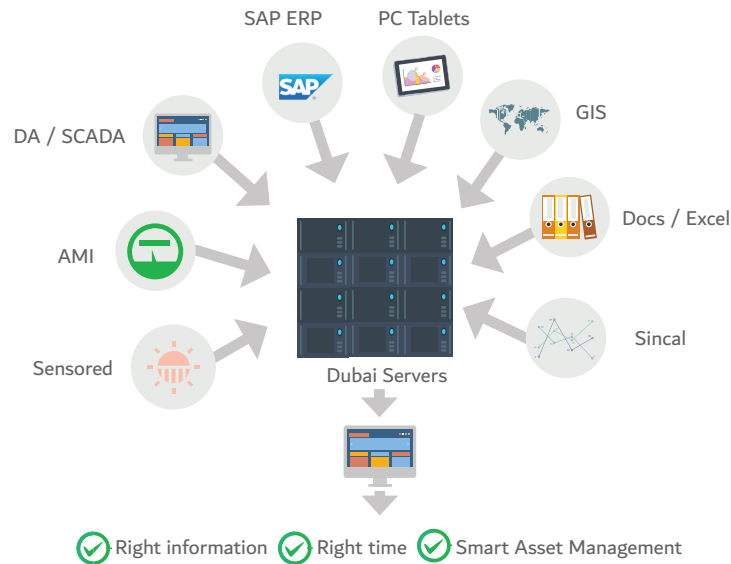


DEWA lost only 7.1% of water in its transmission and distribution system, compared with 11.95% by the top 10% of utilities reported by Global Water Intelligence Utilities (GWIU).

DEWA ASSET HEALTH CENTRE

DEWA continues to actively promote smart asset management in support of its Asset Management policy and strategy. In 2016, it started the Asset Health Centre (AHC) project. The transition to smart asset management is in line with DEWA's strategy of enabling a smart city, and is also part of the DEWA Asset Management Smart Grid Programme. The AHC allows collection and coordination of all the data points along the chain of operations in a data warehouse that ensures visibility of all the data, facilitates faster and more robust decision-making, and lays the foundation for predictive analytics.

The AHC builds on and coordinates existing DEWA data systems including SCADA, GIS, and AMI into one holistic smart asset management system. The figure below shows how inputs from a variety of sources are aggregated into a centralised data base. The data base uses industry expertise and packaged algorithms to analyse the data and provide additional insights. These results are then exported to the AHC dashboard to show opportunities to extend the asset lifecycle.



Asset Health Centre integrates data from AMI, SCADA, ERP, GIS, SINCAL, and various non-Smart Grid sources to provide real-time, predictive information on its assets to enable world-class smart asset management.

Upon completion, the AHC will be fully integrated with DEWA's internal systems, automate previously fragmented and manual activities such as Asset Life Cycle Costing, Asset Failure & Reliability Analytics and automatically aggregate data and information into an Asset Health Index. The AHC will ultimately perform advanced analytics on all assets as smart grid assets continue to go online such as Shams Dubai. The AHC currently encompasses assets from Transmission Power and Distribution Power divisions, with Water & Civil Division assets scheduled to come online in the next phase. Generation Division has developed a specific system which monitors the health and condition of all their assets. Benefits of the AHC include optimising assets performance throughout the asset life cycles, improved data collection and analytics, minimising asset outage and interruption times, extending asset life, and improving the overall reliability and quality of DEWA's services.

DEWA ASSET MANAGEMENT SYSTEM GOVERNANCE

DEWA has established a robust Asset Management (AM) governance model to ensure DEWA realises the benefits of its asset management system and ultimately continues to create long-term value for its stakeholders.

DEWA's Asset Management Leadership Team is led by the MD & CEO. DEWA Finance Department, led by the CFO, provides the overall leadership, guidance and support for DEWA AM system governance at corporate level. The Finance Department is responsible for the development of DEWA AM Policy, DEWA AM Strategy and DEWA AM Approach. The ultimate owner of the DEWA AM Mechanism are each of the Core Divisions, represented by their top leadership, EVPs, VPs and Senior Managers who are key members of the Asset Management Review Committee. DEWA also has a Chief Compliance Officer responsible for its overall Governance Framework.

As illustrated below, the DEWA Asset Management governance system follows the PDCA (Plan, Do, Check, Act) approach, under the umbrella of DEWA Corporate Governance Policy. The core of the governance system is a transparent framework that clearly delineates the asset management system, its objectives and desired outcomes and key responsibilities and accountabilities. The governance system ensures vertical and horizontal alignment so that Asset Management Plans in the Core Division can be implemented with effective risk based decision-making, integrated and coordinated activities that continue to create value.



MANAGEMENT REVIEW

Semi-annual management review meetings are a key element in the asset management system governance. The focus of these meeting is on one thing – ensuring the effectiveness of the asset management system in place. In addition to reviewing the Asset Management System KPIs, the management reviews allow close scrutiny of the system to ensure the vertical and horizontal alignment across DEWA is in fact working and to determine whether any adjustments are required in response to any internal or external changes. Each core division holds semi-annual division level review meetings. Corporate management review is held annually and encompasses the executive managers and chaired by the CFO. The final management review is held with DEWA's MD&CEO at the close of the year.

SELF-ASSESSMENT BY CORE DIVISIONS

DEWA deploys both bottom-up and top-down level reviews. The bottom-up process begins with self-assessments by asset owners in each core division. These self-assessments are important tools to check the compliance towards best practices, standards and effectiveness of DEWA policies, strategies, operations and continuous improvements on the ground. These self-assessments also enable teams to institute corrective action as necessary in a timely manner. Actions that require higher level review or approvals are then escalated to the appropriate level within the core divisions. From a top-down approach, semi-annual multi-level management reviews based on rigorous KPIs in place on asset management systems and activities, as well as reporting on progress from the asset management teams, allow a higher level of scrutiny and ensures continuous alignment as policies or strategies change across DEWA or relevant Dubai/UAE vision and strategies. The final component of the monitoring element of the governance system is the Internal Audit that is conducted annually on the Asset Management systems.

ASSET MANAGEMENT SYSTEM COMMUNICATION

Communication is the most important element in ensuring transparency and alignment across DEWA. As such, DEWA has established an Asset Management Protocol that is built on the principle that more communication is always better and that every member of the organisation needs to have visibility and understanding of what the organisation is doing and why. In addition to the formal communication cascading from leadership and management to all employees, each division has assigned Asset Management Champion(s) who coordinates closely with the Asset Management System owner and other champions to communicate and coordinate asset management information, processes and procedures as well as other related activities including continuous improvement. There is a SharePoint folder named “Tijoory” where DEWA Corporate level and DEWA Division Level (Core Divisions) Asset Management documents can easily be accessed and retrieved.

DEWA AMS Champions and Communication System



DEWA ASSET MANAGEMENT PERFORMANCE - 2017

Globally Leading Asset Management Performance

2.68
CML (FORCED)

3.3%
ELECTRICITY LINE LOSSES

7.1%
UNACCOUNTED FOR WATER

99.16%
AVAILABILITY FACTOR
(POWER) - SUMMER

99.95%
RELIABILITY FACTOR
(POWER) - SUMMER

99.99998%
TRANSMISSION SYSTEM
AVAILABILITY

93.1%
DGEP CUSTOMER
HAPPINESS INDEX

7.53%
RETURN ON EQUITY

International Recognition

#1 GLOBALLY

WORLD BANK

For Getting Electricity in the World Bank Doing Business Report 2018.

EFQM GLOBAL EXCELLENCE AWARD

DEWA achieved the EFQM Global Excellence Award as the 1st organisation outside Europe, and the 1st in the Award's history to win it from first application (2017).

4 INTERNATIONAL & REGIONAL RISK MANAGEMENT AWARDS

Covering Risk Management Implementation, Cyber Security and Developing Capabilities

ISO 22301

BUSINESS CONTINUITY MANAGEMENT SYSTEM

DEWA is the first and only power utility certified to ISO 22301 in the MENA region according to BSI

10 TIMES RECOGNITION (SWORD OF HONOUR)

From British Safety Council (2007 - 2009, 2011 - 2017).

6TH YEAR IN A ROW GLOBE OF HONOUR

British Safety Council (since 2012)

BEST PRACTICES

In addition to being certified by ISO in asset management, DEWA implements global best practices in several areas that enable the achievement of world-class asset management processes.

European Foundation of Quality Management (EFQM)

The European Foundation for Quality Management (EFQM) Excellence Model provides a framework that allows any organisation to assess its current level of excellence and provides a holistic view of the organisation.

DEWA won the EFQM Global Excellence Award, becoming the first organisation outside Europe to receive this prestigious award, and the first in the Award's history to win it from the first application. DEWA scored (750-800) points in its first ever assessment, and was ranked in the Platinum Category as per the EFQM Global Excellence Index.



“ We dedicate this global achievement to His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai. His Highness is the leader of excellence whose vision is the guiding light in our journey towards making achievements. It motivates us to contribute to making the UAE rank first in all fields, and at all levels. ”

HE Saeed Mohammed Al Tayer,
MD & CEO of DEWA

Implementation of Project Management Institute (PMI) standard in project management

PMI is a leading nonprofit professional membership association dedicated to project management. The PMI Standards and Methodology are widely considered the benchmark for managing projects and portfolios alike. DEWA's core divisions and enabling functions apply the PMI Standards and Methodology to manage their projects and portfolios. Implementing the PMI Standards and Methodology provides an integrated solution to manage project life cycles from initiation to closure.

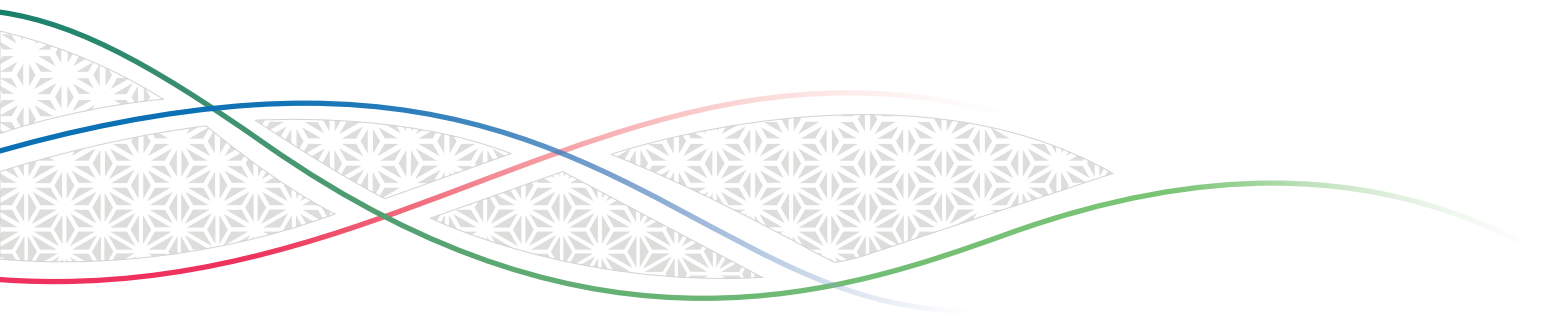
System, Applications and Products (SAP) Implementation

DEWA has established a robust SAP ERP System that is periodically reviewed and upgraded to align with the growing and changing requirements of DEWA as it continues to mature. SAP Wave-1 (DEWA Core Billing and Customer Relations processes) launched in 2009 and was followed with Wave-2 (Finance, Materials Management, Human Capital Management, and New Connections process) in 2012. SAP Wave-3 completed in late 2016, upgrades the functionality of Enterprise Asset Management, Project Portfolio Management and Project Systems, which enabled the asset operating divisions to re-engineer core processes, use integrated tools and further automate the maintenance and management of their assets. With each wave, additional functionality has been added to support DEWA's long-term goal of being a world-class utility.

The benefits of the continuous enhancements in SAP ERP System include, but are not limited to, the following:

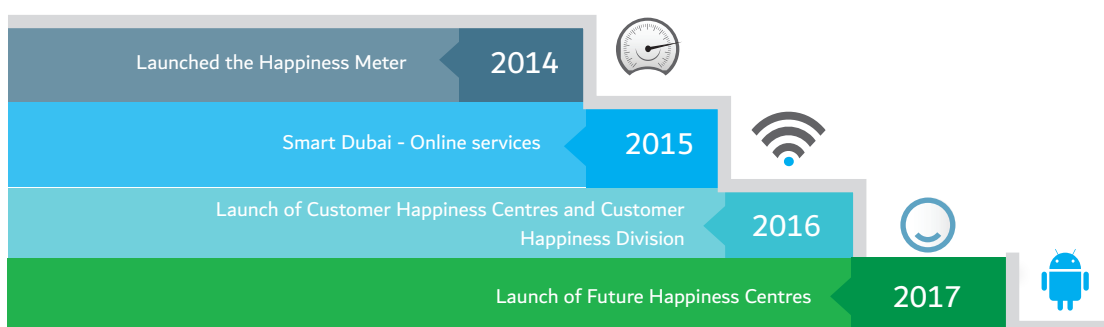
- Automates DEWA's business processes and several information systems, and integrates them into a single platform; this is a global best practice that increases enterprise efficiency.
- Optimises asset life cycle and reduces cost.
- Lowers risks of employee injuries in field operations.
- Improves planning and scheduling for annual, preventive & breakdown maintenance, and resource utilisation.
- Improves productivity through mobile solutions and automatic resource allocation.
- Provides comprehensive, up-to-date view of DEWA's entire portfolio of projects.
- Embeds best practices in project governance.
- Delivers timely, accurate, on-demand information and data.
- Automates reporting process.

2. CUSTOMER HAPPINESS DRIVES VALUE CREATION



HAPPY CUSTOMERS

Customer happiness is a key performance indicator that DEWA routinely measures, monitors and seeks to improve. While customer happiness might not seem like a drastic upgrade from customer satisfaction, it represents a paradigm shift in DEWA's approach to enhancing the customer experience. By shifting to customer happiness, DEWA has actually transitioned from being a reactive to a proactive organisation. The conventional customer satisfaction model focused on assessing DEWA's performance in satisfying the needs of their customers. Whereas customer happiness is the proactive anticipation of customer's needs to develop transformative solutions to issues they may not have considered yet. This is a continuation of DEWA's journey to excellence and delivers value to the most important external stakeholders, the people of Dubai.



The emphasis on happiness starts at the highest levels with UAE Vision 2021 and Dubai Plan 2021 and cascades down to DEWA's Corporate Strategy and then its Core Process Strategy Map, which is monitored through Key Performance Indicators (KPIs).

A key element in this process map is the closing of the feedback loop by connecting customer happiness directly with planning: Effectively, the creation of value starts and ends with managing customer happiness. As a utility provider, DEWA's ultimate measure of success is the happiness of its customers.

EARLY ADOPTERS – FIRST TO MARKET

DEWA is a world leader in adopting and adapting new technology

1ST
TO ANNOUNCE
100% m-completion

1ST
CYBER-SECURITY
centre across Dubai
Government

1ST
PUBLIC UTILITY
application on Apple TV

1ST
TO LAUNCH
Rammas artificial
intelligence service

1ST
PUBLIC UTILITY
application on
Samsung Smart Watch

1ST
IN WEBSITE
customer happiness among
government departments

1ST
FOR 7 YEARS IN A ROW
in e-service quality evaluation
achieving 95%

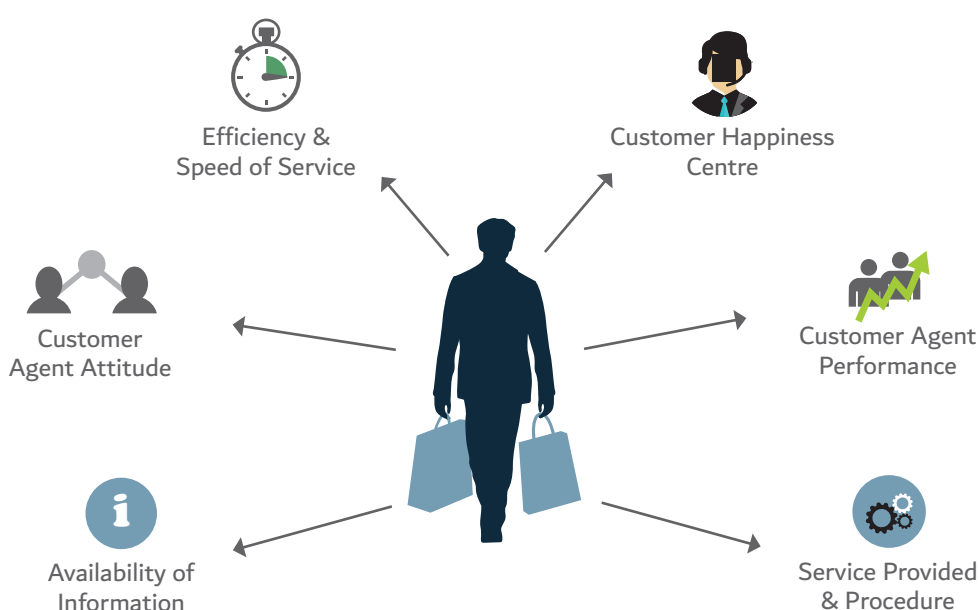
MEASURING HAPPINESS

Measuring happiness is an art as much as it is a science. DEWA has developed its own customer happiness index (CHI) that combines the results of two programmes:

CHI = average of Customer Happiness (CH) survey and mystery shopper (MS) results

The mystery shopper portion of the calculation provides further validation and serves as an extra level of rigour in the approach, increasing confidence in the index.

Performance indicators measured by CH survey and mystery shopper study:

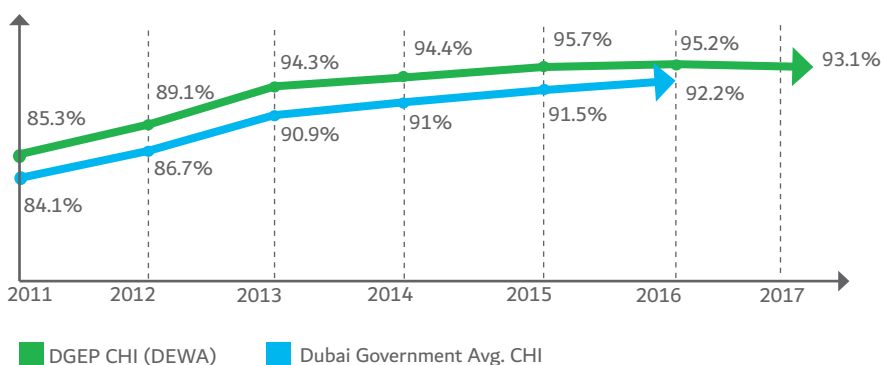


	Channel	Available on
1	Website – Transactions	DEWA Website Transactional Services
2	Website – General Pages	DEWA Website General Pages
3	Mobile App – General	DEWA Mobile Applications
4	Mobile App - Transactions	DEWA Mobile Applications
5	Customer Happiness Centres – SDG Tool	55 Smart devices in 12 CH Centres
6	Customer Happiness Centres – Internal Tool	66 Smart devices in 10 CH Centres 4 Smart devices in the Future Happiness Centre

Since launch, DEWA has recorded a significant improvement in DGEP CHI, which has risen from 85.3% in 2011 to 93.1% in 2017. These results show that DEWA's focus on customer happiness is yielding the desired results.

DEWA's methodology for quantifying customer happiness is aligned with the Dubai Government Excellence Program (DGEP). The main purpose of the DGEP is to enable government entities to achieve welfare and happiness for the people of Dubai. It also aspires to meet the community's needs and expectations to reach the Seven Stars level of service and highest degree of efficiency and effectiveness in the provision of Government services. Furthermore, it aims to support government trends related to innovation to acquire a competitive advantage and a leading position. Every year, DEWA results are benchmarked against the average percentage score in the DGEP.

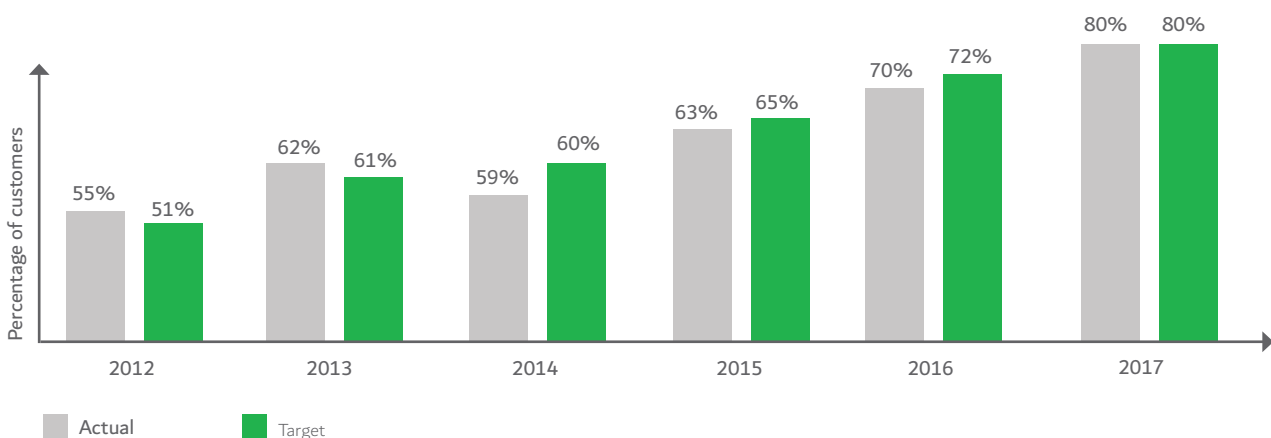
DEWA's DGEP Customer Happiness Index constantly exceeds Dubai Government Average Customer Happiness Index:



DEWA has consistently achieved CHI figures that are greater than the Dubai Government average CHI.

As a utility operator that provides vital services to the city, DEWA's approach to happiness is necessarily unique: to be both everywhere and nowhere at the same time. In other words, DEWA aims to ensure quality and timely availability of its services 100% of the time while also not being intrusive or disruptive to its customers. DEWA sees a future in which there is never a need for any customer to ever have to physically visit a branch; they will be able to sign up for, or cancel, any service online, anytime and from anywhere.

e-services adoption



As of 2017, DEWA achieved 80% of e-services adoption, which is significantly 45% higher than in 2012. Moving forward, in line with global technological trends and Dubai's 10x strategy, DEWA expects to deliver exponential growth, with services being automated at an increasing rate through the use of technology such as artificial intelligence and machine learning, which have been applied commercially elsewhere.

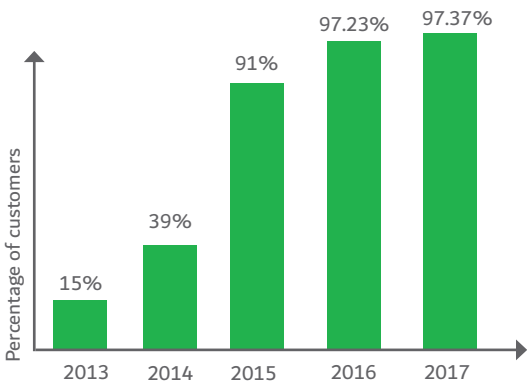
DEWA uses a wide range of communication channels, including the website and mobile application, to collect as much customer happiness feedback data as possible:

E-Services

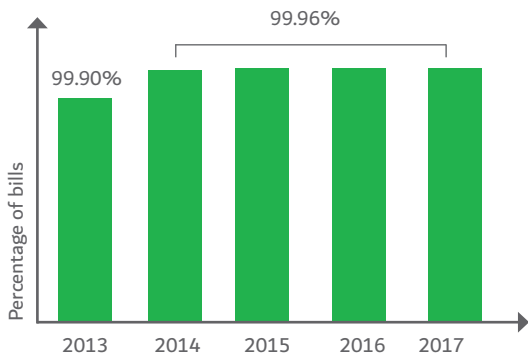
100% M-COMPLETION Mobile friendly services.	97.37% CUSTOMERS Registered for Green Bills	80% CUSTOMER Adoption of Smart services in 2017.	30 INTEGRATIONS with entities available on 11 platforms
SMART APPLICATION Multiple services in one convenient application.	95% WEBSITE Quality & Evaluation	NO. 1 AMONG GOVERNMENT SDG Happiness Index 83.49%	

DEWA's journey towards continuous excellence involves all of its core processes, including customer happiness. For example, the customer happiness-focused initiative to increase the availability of its e-services led to increased adoption of green billing from 15% in 2014 to over 97.3% in 2017. This initiative increased both the convenience of its services to its customers as well as contributed to its sustainability initiatives by reducing the amount of paper used in billing.

Green bill adoption

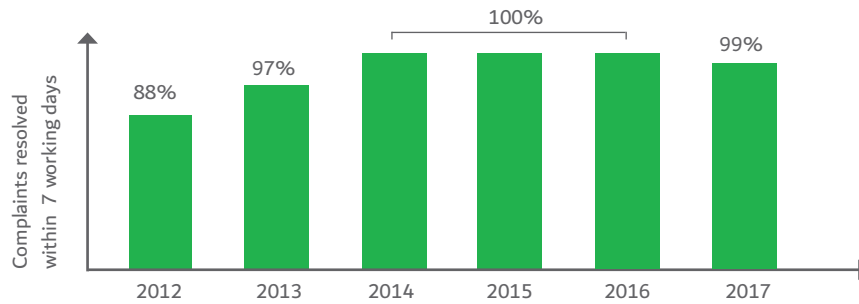


DEWA billing accuracy



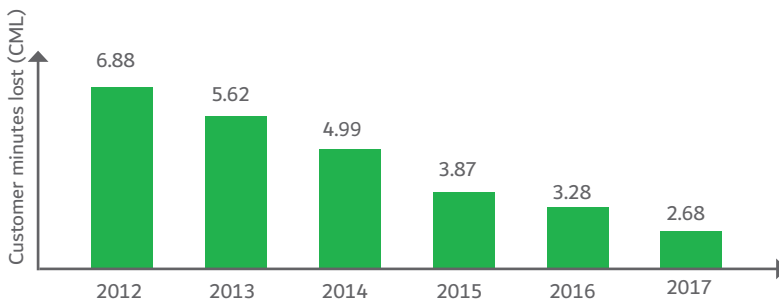
Holistic Customer Happiness

In addition to CHI, DEWA measures a number of KPIs that together provide a more holistic view of customer happiness at DEWA. This includes complaints per 1,000 customers, complaints resolved within 7 working days. Together, these KPIs drive DEWA to address the root causes of customer complaints to reduce their frequency and also to quickly resolve any complaints that do occur.



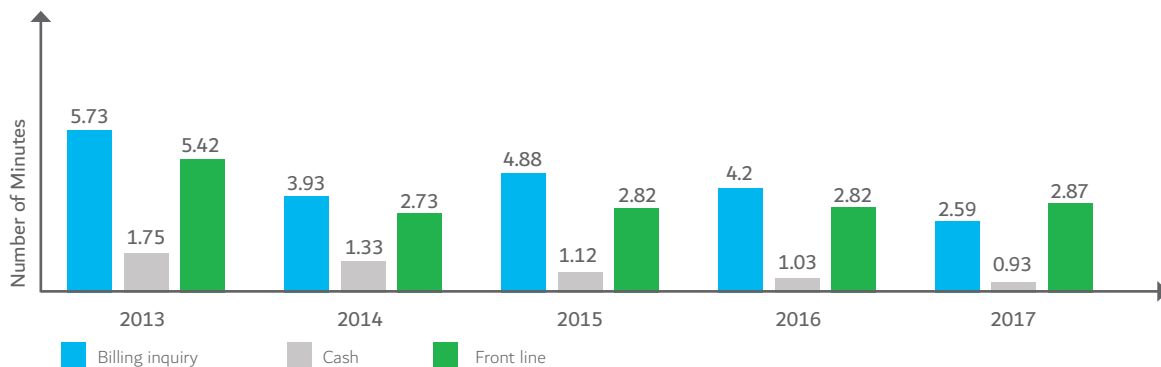
The other KPIs tracked that also directly impact customer happiness are the unplanned customer minutes lost (CML forced) and the average waiting times for various inquiries at the physical service centres.

Customer Minutes Lost (forced)

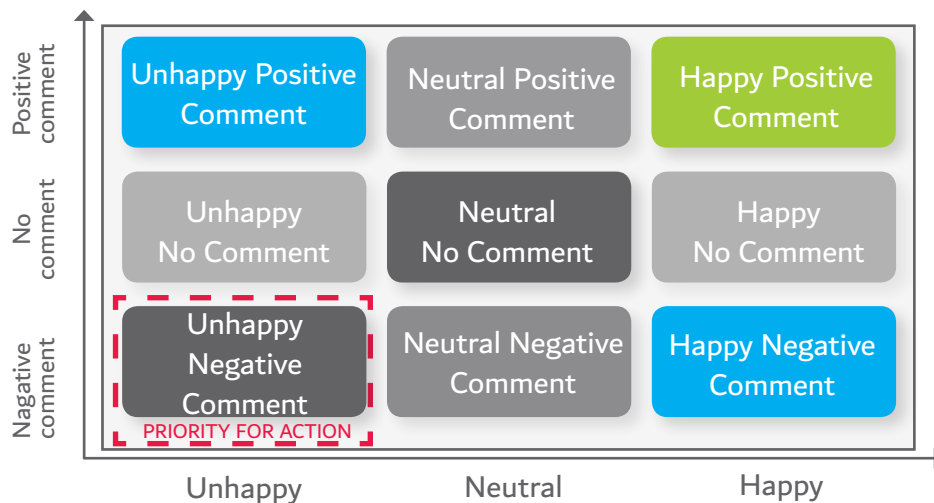


The consistent reductions in these KPIs have had a direct impact on the happiness of DEWA customers.

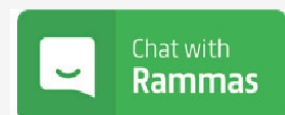
Shorter Waiting Times Produce Happier Customers



Once DEWA collects and analyses CHI data and information, it uses it to design interventions for non-favourable results, as shown below:



CASE STUDY HIGHLIGHT (RAMMAS)



With the launch of Rammas in early 2017, DEWA became the first government organisation to launch an online chatbot in both Arabic and English to communicate with customers and respond to their enquiries. Rammas, like other e-initiatives adopted by DEWA, aims to reduce visits to DEWA offices by 80% and further encourage the use of smart channels. This initiative supports both DEWA's efforts towards enhancing customer happiness and the Smart Dubai initiative. It also supports DEWA's efforts to enhance artificial intelligence.

Rammas, which is powered by artificial intelligence technology, acts as a virtual employee that is available around the clock via DEWA's smart application. The application is available on both the iOS and Android platforms, in addition to DEWA's website, Facebook page, and on the Alexa smart device from Amazon. Not only does Rammas respond to customers instantly, but it also collects and analyses data to enable a better understanding and anticipation of customers' needs. To date, hundreds of thousands of enquiries have been addressed by Rammas via different communication platforms, including the DEWA website, the smart application and DEWA's Facebook page.

This initiative demonstrates to customers that DEWA values their time and always strives to offer them quality services. Moreover, Rammas reduces the average time customers have to wait before they are attended to by an agent, which is another factor that affects customer happiness.

CUSTOMER HAPPINESS CENTRES: SEVEN-STAR SERVICE

Seven-Star Customer Service

In pursuit of excellence in customer service, DEWA implemented the latest international technical solutions at its physical customer happiness centres to achieve a Seven-Star Rating for services.

A Seven-Star Rating represents the highest rating in the Global Star Rating System for Services, launched under the directive of HH Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai. This system sets benchmarks for all service delivery channels and interfaces, including call centres, websites, smart applications and customer happiness centres. DEWA happiness centers have been rated, as 5-star at the Head Office, and 4-star at 6 other Customer Happiness Centres.

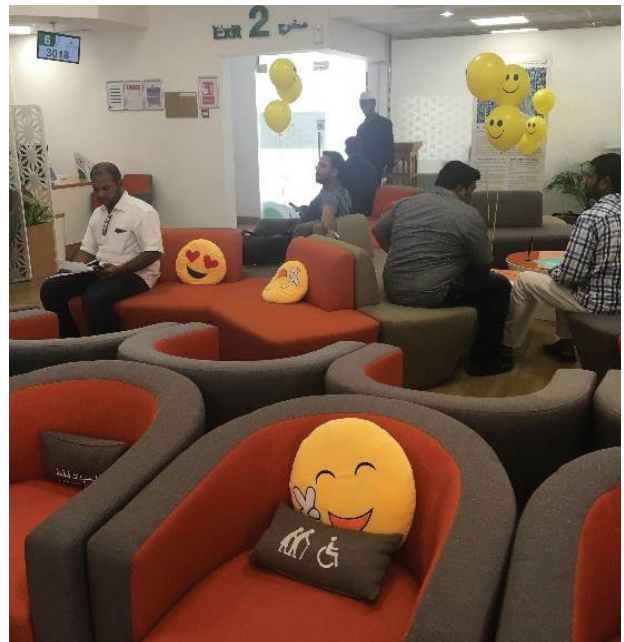
“We strive to provide 7-star services and we will compete with the private sector in the quality of services as per global standards. We now have quality standards for Customer Service employees to unify and improve service delivery, quality and customer satisfaction. We also have clear guidelines for both the government and customers that highlight our commitments to them and their duties to the service-provider.”

His Highness Sheikh Mohammed Bin Rashid Al Maktoum,
Vice President and Prime Minister of the UAE and Ruler of Dubai

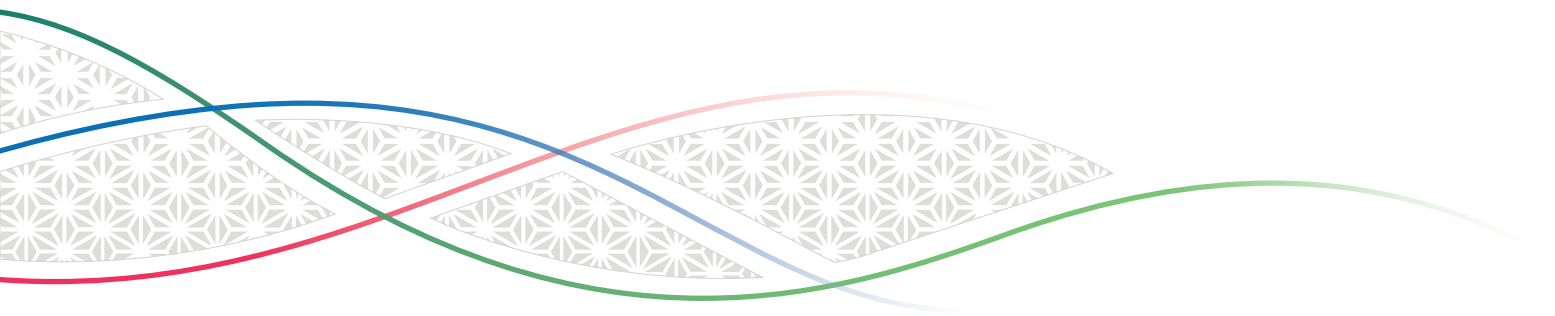
Unified Customer Experience: Redesigned Customer Happiness Centres

To reflect this initiative, DEWA redesigned its customer service centres with a focus on customer happiness. The redesigned centres, called Happiness Centres, provide a unified customer experience across all centres, reinforcing the brand of excellence at DEWA. For this work, DEWA achieved 3 golden awards in the Best Customer Service category at the 13th annual International Business Awards, also known as the Stevie Awards. In addition to achieving a score of 98% under the International Standard for Service Excellence (TISSE).

DEWA's redesigned Customer Happiness Centres provide unified seven-star customer service.



3. OUR GREATEST ASSETS – HAPPY EMPLOYEES



DEWA'S LEADERSHIP IS COMMITTED TO EMPLOYEE HAPPINESS

Guided by the vision of His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, the city has set on the path to becoming the happiest in the world. The government has transformed its approach to both its own employees and its residents, including changes to legislation, policy and capital outlays. To enable this transformation, Dubai has launched a number of initiatives across governmental services and utilities, including at DEWA.

The transition to a happiness-centric culture is also a manifestation of DEWA's commitment, at the highest level, that its human capital constitutes its most valuable asset. And because DEWA recognises the value of its human assets, it is investing a commensurate amount of time and capital on human asset management.

“ The job of governments is to create the environment in which people can achieve their happiness. Yes, the government's job is to achieve happiness. ”

His Highness Sheikh Mohammed bin Rashid Al Maktoum
Vice President and Prime Minister of the UAE & Ruler of Dubai

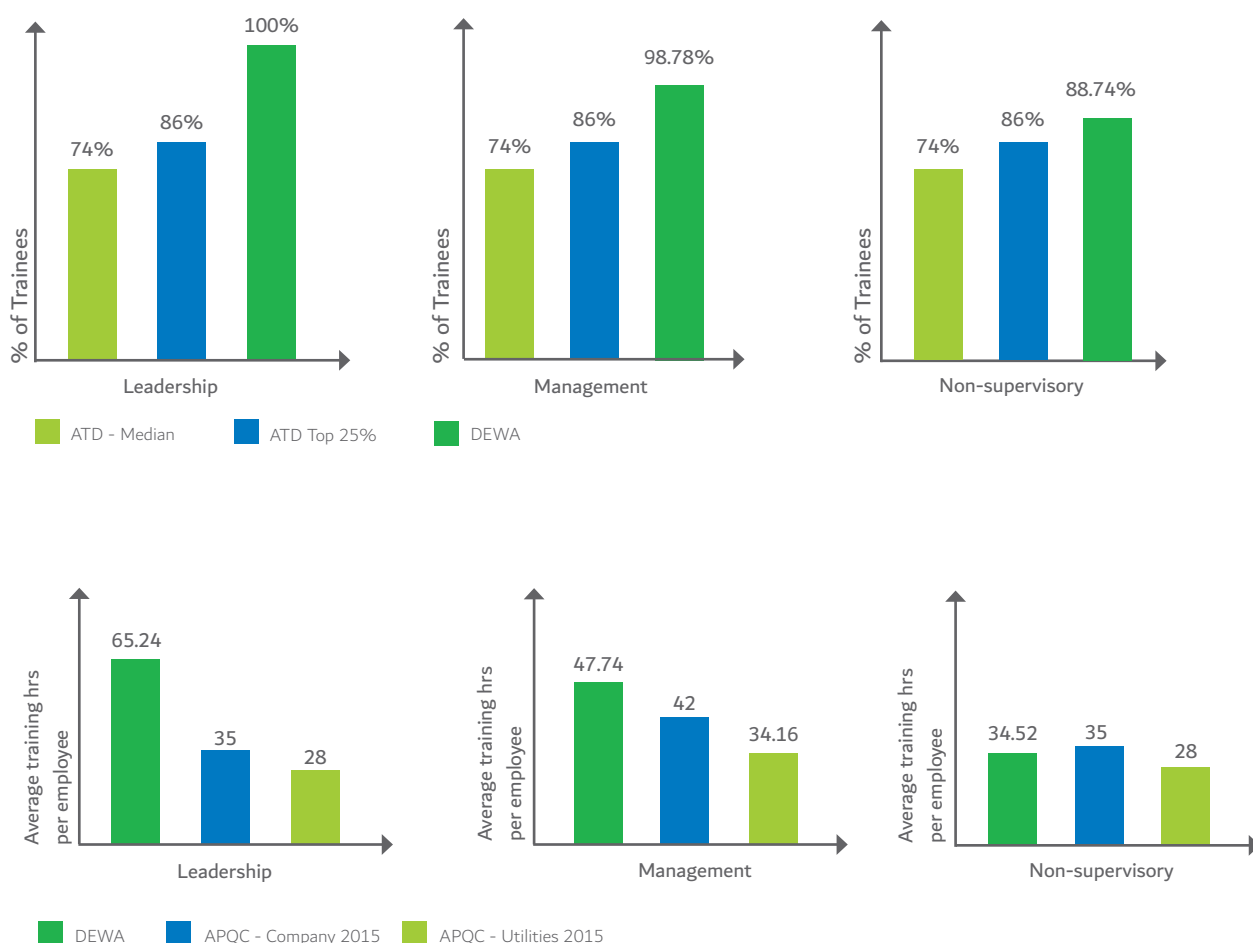
“ We at DEWA spare no effort to make our work environment more motivating, attractive and creative, with the aim of reaching the highest levels of job happiness, productivity and innovation. ”

His Excellency Saeed Mohammed Al Tayer
Managing Director and Chief Executive Officer
Dubai Water & Electricity Authority

DEWA'S TRAINING AND DEVELOPMENT PRACTICES

DEWA benchmarked employee training hours with the American Productivity & Quality Centre (APQC), a global leader in business benchmarking and best practices for organisations in all industries, and the Association for Talent Development (ATD), the world's largest association dedicated to those who develop talent in organisations. Results showed that DEWA provides its employees with more training hours per year than the top utilities in the world.

In 2017, DEWA ensured that nearly all of its employees at all levels - leadership (100%), management (98.78%) and non-supervisory (88.74%) - attended formal training and development. Moreover, the number of hours of training delivered, matched or exceeded the best in the world.



DEWA employees on average receive more training hours than benchmarked entities.

DEWA ACADEMY

DEWA Academy underlines DEWA's strategy for preparing national cadres to be part of DEWA's fast-growing operations and to consolidate its leading role as national organisation. It contributes effectively to the development of the nation as well as sharpening the skills of citizens as per the Government's Emiratisation strategic goals. By extending its reach to the classroom, DEWA has charted a clear path towards equipping local talent with the specific skills needed in DEWA's work environment. The academy provides students in the age group of 15 & above, both theoretical and practical training covering different aspects of generation, transmission and distribution of electricity and water. DEWA Academy is accredited by The Business and Technology Education Council (Pearson BTEC), UK.

FANOWS - CENTRALISED KNOWLEDGE MANAGEMENT

The project aims to centralise the knowledge held by from different employees with different backgrounds so that it can be disseminated through on-the-job training sessions. The aim is to contribute to developing employees with a wider range of skills and domain knowledge outside of their job description. There are different knowledge tracks for different profiles. During its pilot phase, the project was rolled out in the Finance Department. The results are under evaluation for further planning and implementation across DEWA's Divisions/Departments.

The benefits of the programme include developing interdisciplinary employees with a better understanding of DEWA business processes, thus increasing their flexibility to perform different tasks outside their job description and allowing them to cover tasks normally performed by others (e.g., during a leave of absence and work hand-over).





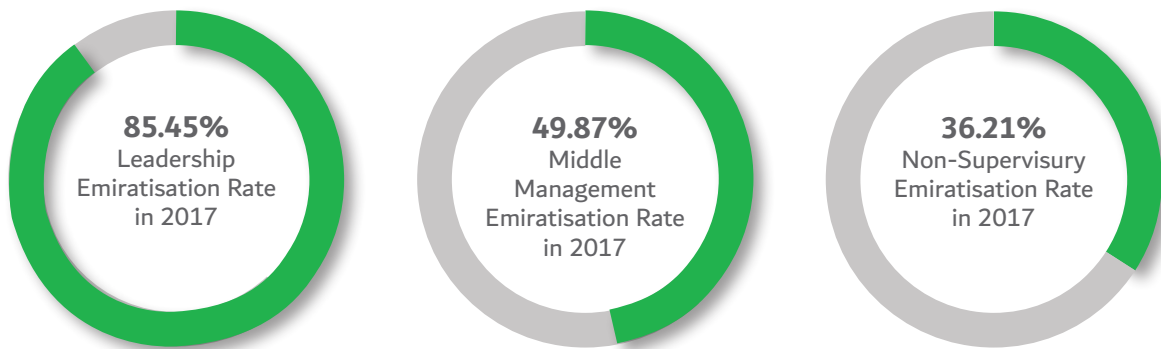
DEWA ASSESSMENT & DEVELOPMENT CENTRE

In 2011, DEWA launched its pioneering Assessment & Development Centre, and in 2015 expanded its scope, making it one of the important development centres among government departments in the Emirate. The Centre is operated by experienced certified team of occupational psychologists and assessors. The Talent Management teams design development programmes and identifies training needs, while the Centre assesses competencies identified in the job description.

The centre employs a number of analytical performance tools and reporting techniques to support assessment of new employees and also provide training and development recommendations for existing employees.

EMIRATISATION

In accordance with Dubai and UAE strategies, DEWA is constantly increasing the rate of local Emirati employees. DEWA strongly supports the Emiratisation initiative and consider it critical to sustainability of its operations in the long term. Most notably, its senior Leadership Emiratisation rate in 2017 is 85.4%.

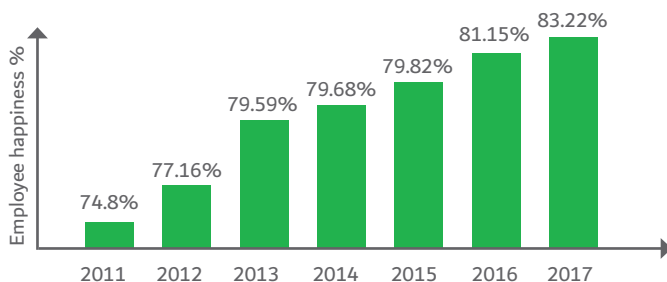


DEWA EMPLOYEES ARE THE HAPPIEST

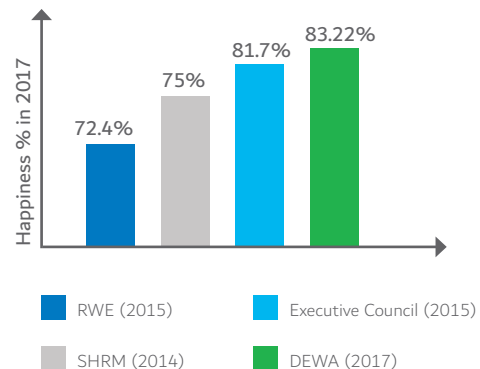
As a reflection of DEWA's commitment to its employees, DEWA has recorded a consistent increase in employee happiness over the past five years. This employee happiness rating is continuously measured and tracked through regular surveys. DEWA recorded an employee happiness rating of 81.15% in 2016 and 83.22% in 2017, which is not only the highest ever for DEWA, but also significantly higher than international benchmarks.

Compared with international benchmarks, DEWA is clearly achieving world-class employee happiness, by exceeding the average for companies listed by the Society for Human Resource Management (SHRM), the largest human resources industry professional association in the world. Specifically, DEWA employees are much happier when compared with RWE, the world-class German utility giant with operations across Europe, as well as the average recorded by the Executive Council.

Employee happiness rating is at its highest



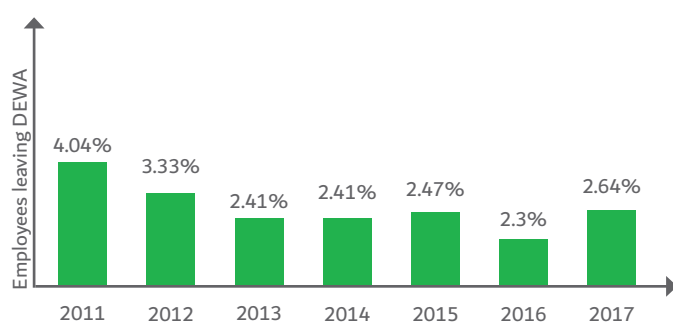
DEWA employees happier than elsewhere



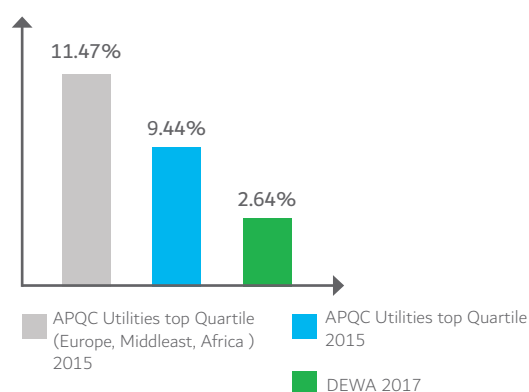
DEWA RETAINS ITS HUMAN ASSETS

DEWA's focus on employee happiness is having a direct impact on employee retention, which is at its highest level ever. DEWA's employees recognise the value placed on them by the organisation and reflect this in their loyalty. Moreover, based on benchmarks from the American Productivity & Quality Center (APQC), a global leader in business benchmarking, DEWA's turnover rate is significantly lower than the average for utilities in the top quartile across the world.

Fewer employees are leaving DEWA



Employee turnover at DEWA is world-class



With targeted training and well-defined career paths, DEWA has approximately one-quarter the employee turnover of the best utilities in the world.

STRATEGIC INITIATIVES FOR EMPLOYEE HAPPINESS

Strategic Initiatives for Human Capital and KPIs					
Initiatives	Career Path and Succession Planning	DEWA Academy	e-Recruitment	Smart HR (SAP)	Assessment and Development Centre
KPIs	Employees with defined career path	Emiratization Rate Non Supervisory	% fulfillment of approved recruitment plan	% Completion of approved SAP Implementation plan	% of employee went through the development centre
	Turnover Rate	Graduation rate	Recruitment process executed on time	Happiness Rate -related to technology used in HR Services	-
	No. of employees attended competency based trainings	Scholarships seats available	Cost per hire	-	-

EMPLOYEE SERVICES EXPERIENCE IS A KEY PERFORMANCE INDICATOR

DEWA rates and reviews all 189 different support services provided internally to DEWA employees - from HR, IT, Finance and BS - with specific KPIs that measures the employee experience in having the services.

KPIs that track employee experience for all 189 different employee services:

Employee Happiness Rate				
Divisions/ Departments	Human Resource Department	I&TF Division	Finance Department	Business Support Department
KPIs	Happiness Rate - technology used in HR Services	Response Rate for Employee Inquiries	Requested Time of services	Requested Time of services
	Response Rate for Employee Inquiries	Requested time of services	Satisfaction Rate on the finance Services	Satisfaction Rate on the BS Services
	% of requests closed within required time	Satisfaction Rate on the IT Services	-	-
	Required Time of Services	-	-	-
	Satisfaction Rate on the HR Services	-	-	-

HR SAP IMPLEMENTATION

In 2015, DEWA launched Wave 2 of its SAP - based “Kawader” HR management system, which automated and integrated the functions of e-recruitment, training needs analysis and online training, travel management, performance appraisals and other personnel-related applications.

This system leverages the latest technologies and performance appraisals respectively with software solutions to replace 43 HR operations and contribute to improving DEWA’s efficiency.

This has directly increased DEWA’s ability to respond to the needs of its employees and thus increase their happiness.

The system also enhances communications and collaboration among employees at all levels to achieve organisational strategy and create a more efficient work environment at DEWA.

DEWA CAREER PATH AND SUCCESSION PLANNING

DEWA has defined and communicated clear career paths for 90% of its employees as part of its strategic objective to build a skilled & experienced workforce with effective knowledge management. This is supported by planned training for employees to move to the next level along this path, including a framework for tracking and managing this development.

To achieve this, DEWA developed a comprehensive matrix for all DEWA designations that clearly shows the next post that an employee can move to from their current designation.

In addition, DEWA has implemented a smart, fully automated system (SAP) for employee performance appraisal, training needs analysis (TNA), online training, career path and Employee Development Journey.

DEWA measures and tracks the efficiency and effectiveness of this initiative in terms of the percentage completion of development plans, employee satisfaction with the quality of development process, and the time taken to complete the development plans.



E-RECRUITMENT

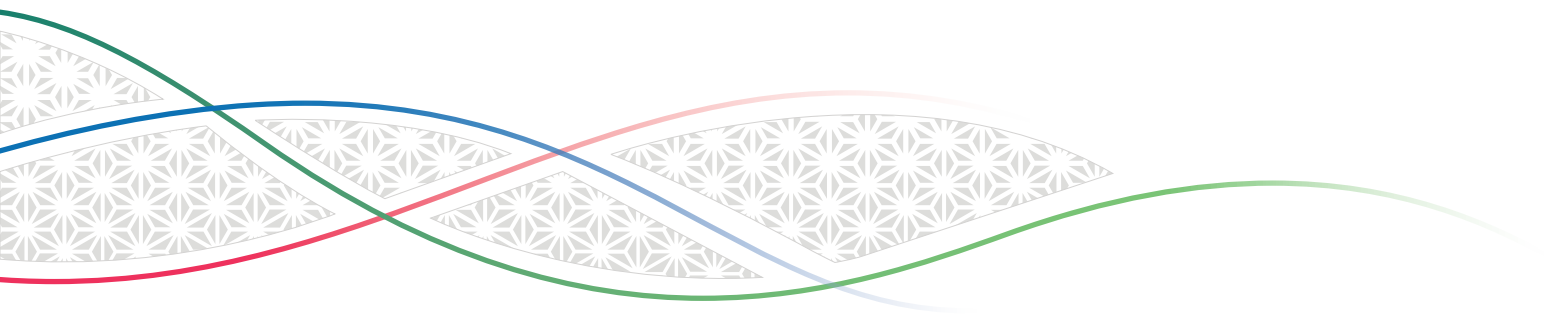
DEWA's e-recruitment system allows it to attract more candidates and identify the best talent at a faster rate and at a lower cost.



DEWA has deployed an e-recruitment system with smart management approval to identify and hire the best talent faster and at a lower cost. The e-recruitment system also helps DEWA increase recruitment internally. This has led to nearly 86.5% fulfilment of recruitment needs with a 20% reduction in recruitment time.

The e-recruitment system is integrated with the HR SAP system and directly reduces the cost-per-hire as well as the percentage of vacancies that are filled. This ensures that DEWA has a continuous stream of new talent with the right skills and at a lower cost of recruitment.

4. INNOVATION – THE GAME CHANGER



INNOVATION AT DEWA – THE GAME CHANGER

Asset management is about creating or unlocking value and innovation in its focus on discovering and forging new thinking ways and means as the sustainable path to unlocking value. Innovation in asset management, focuses on the drive to create, protect and multiply value through the deployment of new approaches, processes, technology, services and analytics in support of organisational vision and goals. DEWA recognises that innovation lies at the heart of asset management leadership and, more importantly, that innovation will ensure that DEWA is able to play a key role in achieving Dubai's vision to be one of the leading, smartest and happiest cities in the world.

“Innovation is no longer a philosophy or theories. It is a vital need for societies preparing to move into the future.”

His Highness Sheikh Mohammed bin Rashid Al Maktoum
Vice President and Prime Minister of the UAE & Ruler of Dubai

THE TIPPING POINT

The roots of innovation at DEWA lie in deliberate and consistent efforts to pursue excellence and continuous improvement in DEWA planning, operations and execution in support of achieving its goals. DEWA has implemented a strategy to foster continuous improvement and excellence since 1997, when it was among the first to champion the Dubai Government Excellence Program (DGEP). Innovation is an important pillar in the DGEP. DEWA's performance since the 1990s, especially its success in anticipating the infrastructure and services requirements of the unprecedented scale and speed of Dubai's urban development, is a testament to its dedicated vision and collaborative efforts of its leadership, employees and stakeholders. In the early decades, the focus was on improving technical know-how, building in-house capacity, and automating smart operations to ensure higher levels of reliability and efficiency while at the same time enhancing the quality of service in support of Dubai's leadership vision for the Emirate. As operations improved to be on par with leading global utilities, Dubai turned its focus to assuming leadership in Dubai, the global utility industry, and beyond. The tipping point came in 2015 when HH Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE, and Ruler of Dubai, announced the UAE Year of Innovation. Always among the first entities to champion and leverage the vision of HH Sheikh Mohammed, DEWA was front and centre in embracing the UAE Year of Innovation.

Recognising the importance of ensuring the visibility of the goal to drive innovation and creativity in energy, renewable and clean energy, and water, DEWA updated its vision to become a *sustainable innovative world-class utility*.

EMBEDDING INNOVATION

DEWA established an Innovation and Creativity Policy which clearly lays out its commitment to embedding innovation and creativity.

DEWA is committed to the efficient, effective and economical management of its assets to meet the satisfaction and exceed expectations of all its stakeholders. This will ensure sustainable delivery of quality supply of electricity, water and other services, at world class level, in line with DEWA's Vision, Mission, Values, Motto and Strategic Objectives.

Innovation has a 40% weight in DEWA's Strategy, the highest weighting of any element. The Strategy's focus on innovation reflected the commitment of leadership to foster innovation on every level, and more importantly the commitment to deploying the required talent and resources to support the innovation drive. DEWA's strengthened innovation strategy is aligned with the National Innovation Strategy, launched by HH Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, to position the UAE as one of the most innovative countries in the world. It also supports the Dubai Innovation Strategy, announced by HH Sheikh Hamdan bin Mohammed bin Rashid Al Maktoum, Crown Prince of Dubai and Chairman of the Executive Council of Dubai.

INNOVATION HAS A 40% WEIGHT

in DEWA's Strategy

BEST ENTITY IN THE FIELD OF INNOVATION DGEPA AWARDS

2016

DEWA has been recognised for its pursuit of innovation. It has won numerous DGEPA awards over the years for continuous improvement and innovation. It was also the first regional utility and, among the first integrated utilities in the world to achieve ISO 55001:2014 accreditation which requires robust systems for continuous improvement and innovation. The current focus is on embedding innovation in all its operations and in fostering a culture of innovation through the integration of innovation management across all the organisation, people, and processes.

In early 2017, DEWA received the European Specification Certificate on Innovation Management Systems (CEN / TS 16555-1-2013) from Lloyds Register for its preparation and application of an integrated system for innovation management (IMS). DEWA's adoption of this standard reinforces its commitment to fostering a culture of innovation and aligning its pursuit of innovation with its corporate strategy and operations. It is also aligned with ISO 55001:2014 on asset management by focusing efforts of managing assets in pursuit of creating and extracting value for the entity and its stakeholders. Achieving the standard recognises that DEWA has systems in place for planning for innovation success; identifying and fostering innovation enablers and driving factors; developing the innovation management process; evaluating and improving the performance of the understanding and using innovation management techniques for the goal of expanding organisational capacity for innovation.

KEY ELEMENTS COVERED BY INNOVATION MANAGEMENT SYSTEM

Enabling Factors

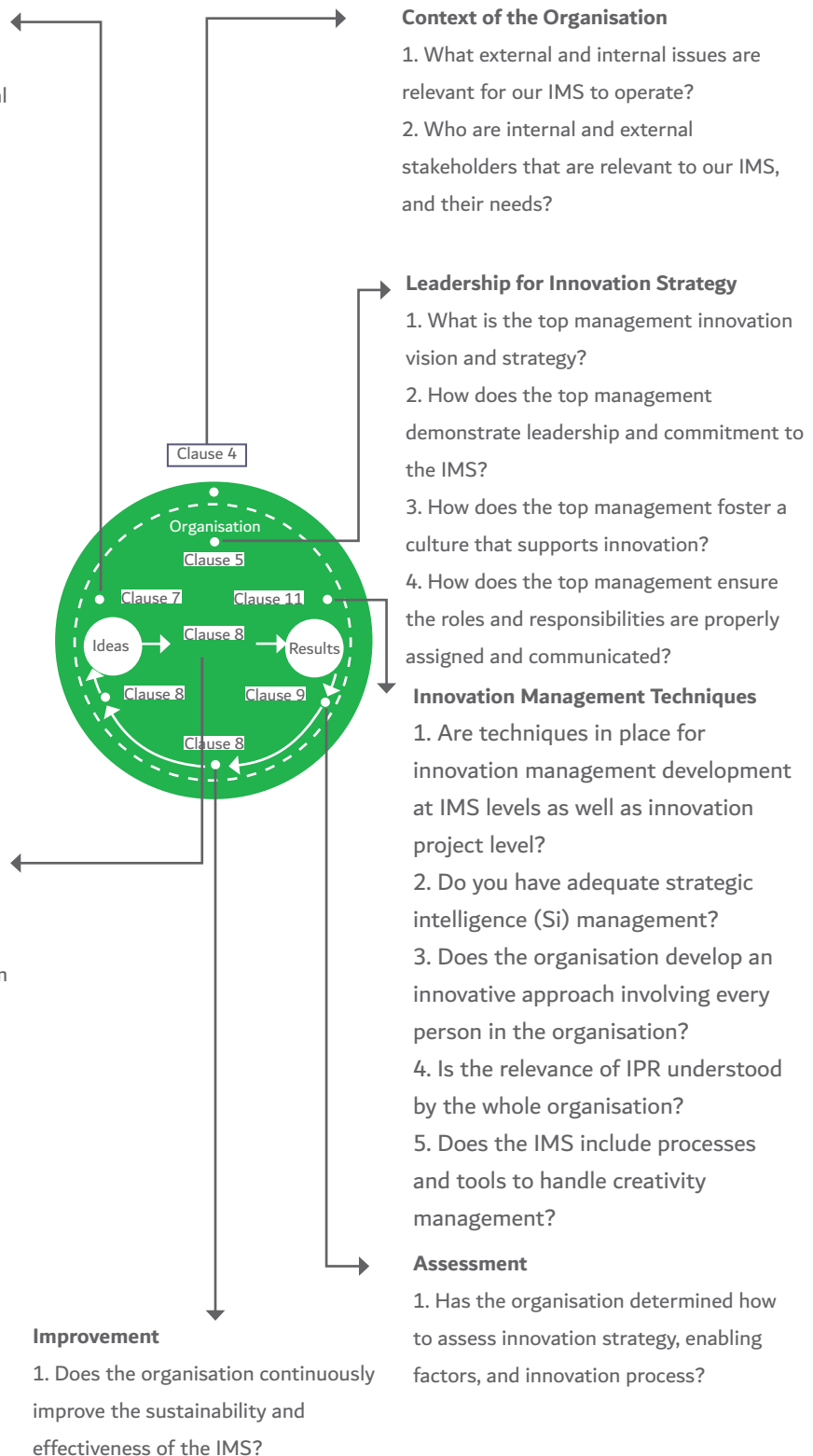
1. How we assigned responsibilities for specific innovation projects and for general innovation management.
2. Do we have the necessary resources for running the IMS (human, tools, facilities, money)?
3. Have we determined the competences needed and trained our people to work with innovation?
4. Are our people aware and motivated about the importance of innovation?
5. Have we established internal and external communication relevant to the IMS?
6. Is the working of the IMS properly documented?
7. Does our strategic HR enforce a strong innovation culture?
8. Do we have an IP management policy?
9. Do we have policies for internal collaboration?

Innovation Process

1. Does the organisation have a detailed innovation process covering all relevant steps from gaining insight about a problem or opportunity to successful launch?
2. Has the organisation defined indicators to assess innovation results?

Planning

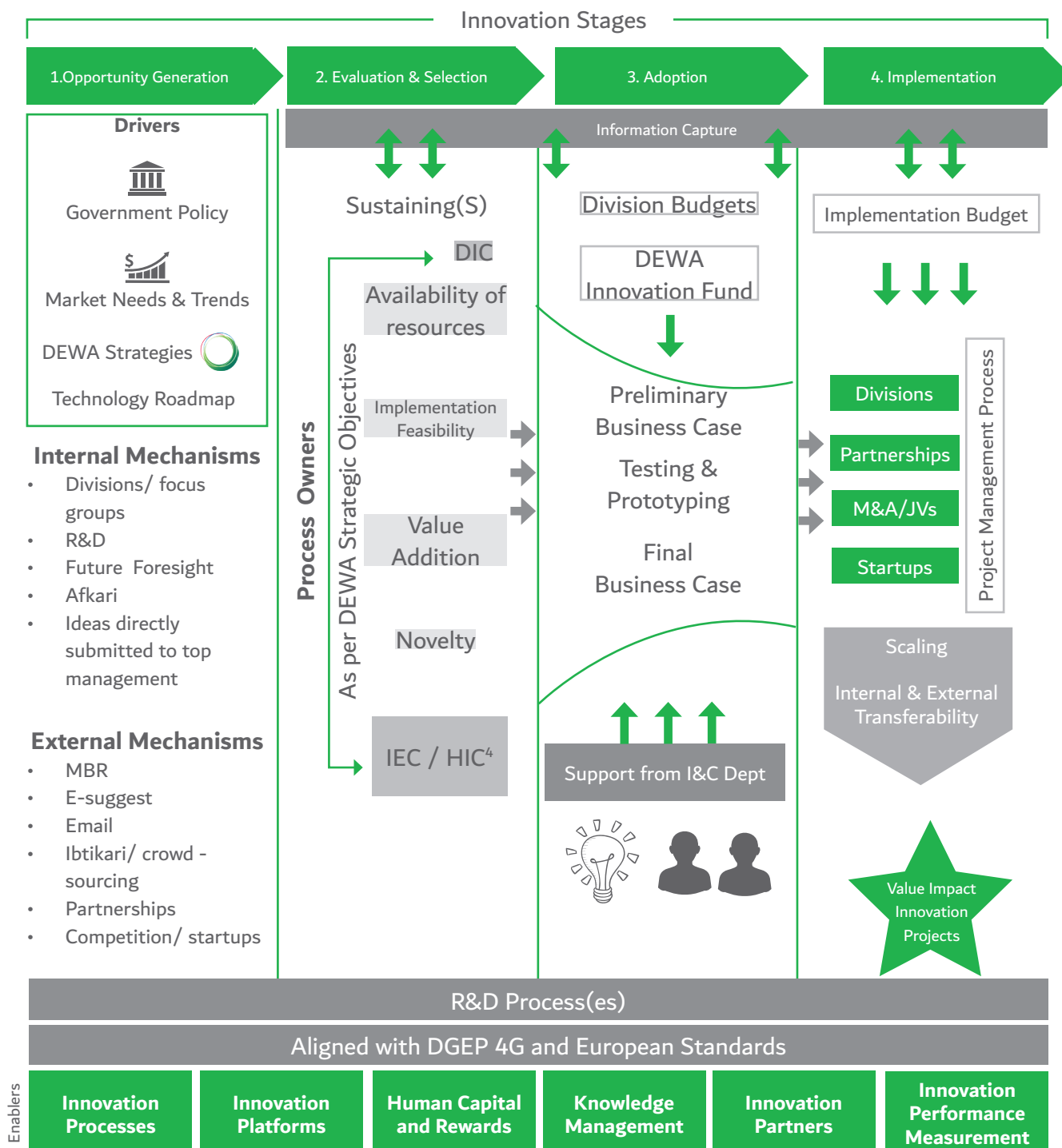
1. What are the risks and opportunities that we need to address, and how do we plan to address them?
2. Have we established innovation objectives at relevant functions and levels, which are consistent with our innovation vision and strategy?



The standard builds on decades of DEWA's commitment to innovation, excellence and continuous improvement while building on the foundations of a systematic approach to managing innovation.

INNOVATION ECOSYSTEM OVERVIEW

DEWA developed an Innovation Ecosystem to serve as a process to capture innovative ideas from sources both internal and external to DEWA. The ecosystem is a framework for scaling up selected ideas and developing them all the way to adoption and implementation.



1) Value-Creation Initiatives are incremental (new to DEWA), regional leader (new to the region), industry breakthrough (new to the industry) and disruptive (new to the world) opportunities. Some initiatives might go directly to HIC

2) DIC: Division Innovation Committees 3) I&C D: Innovation & Creativity Dept. 4) HIC: Higher Innovation Committee

GOALS OF STRATEGIC INNOVATION

DEWA's innovation policy and strategy are aligned with UAE Innovation Strategy, Dubai Vision 2021, Smart Dubai Strategy and its own internal goal of pursuing excellence in asset management.

Innovation in Stakeholder Happiness	Innovation in Technology	Innovation in Sustainability	Innovation in Operations	Innovation in Business Model
 Customer Happiness  Government Stakeholder Happiness  Employee Happiness  Partner Happiness	 Enable Smart City  Ensure Information and Cyber Security  Trend Analysis for Future Foresight  Technological Solutions Adoption,  Prototyping and Implementation  Customer Experience	 Sustainable and Diversified Energy Mix  Effective Demand Side Management  Greenhouse Gas Emission Reduction	 Onsite Workforce Planning  Operations and Services Optimisation  Supply Chain Rationalization  Fixed Asset Management Customers  Experience Enhancement  Knowledge Management and Sharing  Skills Optimisation  Resources Optimisation  Efficiency Optimisation  Loss Reduction	 Diversified Investment Portfolio  Integrated Energy Solution Provider  Distributed Energy Generation

Key Performance Indicators

Investment in innovation initiatives in stakeholder happiness	Investment in innovation initiatives in technology	Investment in innovation initiatives in sustainability	Investment in innovation initiatives in operations	Investment in innovation initiatives in business model
 # of new/improved products and services resulting from innovative initiatives in stakeholder happiness	 # of new/improved products and services resulting from innovative initiatives in technology	 # of new/improved products and services resulting from innovative initiatives in sustainability	 # of new/improved products and services resulting from innovative initiatives in operations	 # of new/improved products and services resulting from innovative business model

INNOVATION JOURNEY

Pre-2014: Ad hoc innovative initiatives

2014

HH Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, launches National Innovation Strategy with aim of making the UAE one of the most innovative nations in the world within seven years.

DEWA reviews and updates its corporate strategy to include Innovation as a main pillar in the strategy with a weightage of 40%

2016

DEWA established the Innovation Team

DEWA joined HH Sheikh Hamdan bin Mohammed bin Rashid Al Maktoum, Crown Prince of Dubai and Chairman of the Executive Council of Dubai, to launch the Dubai Future Accelerators initiative to enable rapid deployment of transformative technologies

DEWA launches Free Electrons accelerators with 8 international utility partners

DEWA establishes creativity rooms in different branches resulting in 155 innovative ideas submitted by employees

DEWA launches Innovation Strategy and Framework across DEWA

DEWA launches 2nd cycle of Robotics competition on UAE level

DEWA launches Shams Dubai Solar Rollers, community programme for students to design, build, and test solar powered remote control cars

DEWA launches Future Utilities Cup competition for startups, focusing on the best futuristic innovations for utilities

2015

DEWA becomes first government entity to implement the best idea management system from Hype Innovations and introduces AFKARI Idea Management System to internal stakeholders

DEWA forms Higher Innovation Committee

DEWA establishes Innovation and Creativity Department

DEWA launches first innovation event at the Innovation Week, with interactive sessions, activities and conferences

DEWA becomes first government entity to launch an Innovation Fund

DEWA launches first cycle of Robotics competition on Dubai level

2017

DEWA launched Innovation Policy to enable innovation across the organisation

DEWA won Top 10 Best Practice Award for Afkari ideas Management System in the International Best Practice Awards in India

DEWA won the Best Innovative Government Entity at DGEP

DEWA launched Hype Innovation Management conference

DEWA launched Solar Rollers Competition for high schools in Dubai

DEWA launched Robotics competition for all schools and universities in UAE

DEWA participated in third cycle of Dubai Future Accelerator programme and signed 5 MOUs

DEWA won 12 innovation awards at the Ideas America, UAE Ideas, and Dubai Innovates

DEWA SUPPORTS SMART DUBAI

UAE Government strategies such as UAE Vision 2021, and Dubai's Vision 2021 are the blueprint for the transformation towards a smart economy. DEWA is a key strategic partner in Dubai and has developed a Smart Grid Strategy, Initiatives, and Programmes to propel Dubai to be the leading smart city in the world.



SMART UTILITY TRANSFORMATION

DEWA is actively contributing to support the Smart Dubai initiative of HH Sheikh Mohammed Bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, to make Dubai the happiest city on Earth.

To support this objective, DEWA developed a comprehensive strategy to implement Smart Grid programmes for electricity and water infrastructure. The Smart Grid programs will provide advanced features and include automated decision-making and interoperability across the entire electricity and water network.

The Smart Grid is a key element in DEWA's strategy to develop an advanced infrastructure to support Dubai becoming a smart city. Smart Grid also supports the Dubai Integrated Energy Strategy 2030 for a 30% demand reduction by 2030, in line with the Dubai Plan 2021 to ensure that all these strategic objectives are fulfilled.

The smart grid strategy contains ten (10) programmes that will be completed over the short, medium- and long-term, from 2014 to 2035. These programs represent an investment of AED 3.5 Billions in capital expenditure by 2020.

Below you can find the Smart Grid programmes under implementation by DEWA:



1) Asset Management (AM): is focused on life-cycle management and maintenance of infrastructure, equipment, and facilities that are essential to the smooth running of the smart grid network. Most of the operational information that is required to determine asset functionality is based on diagnostic information obtained through the operational environment that controls the system. AM uses this information to determine how well the asset is performing, its operational lifecycle condition and maintenance requirements.

2) Advanced Metering Infrastructure for Electricity (AMI-E): will provide advanced metering services and applications for customers, the programme focuses on providing energy usage profiles which will enable customers to monitor information through smart apps, and will enable customers to manage their electricity consumption, save costs and preserve natural resources.

3) Advanced Metering Infrastructure for Water (AMI-W): will provide advanced metering services and applications for customers, the program focuses on providing water usage profiles which will enable the customers to monitor information through smart apps, and enable customers to manage their water consumption, save costs and preserve natural resources.

4) Big Data and Analytics (BDA): the addition of AMI and sensors on the grid has enabled DEWA to acquire a wealth of new information about the performance of its assets. Modern database management and mining tools will be deployed to implement data analytics which is the application of computer technologies and statistical models to enable DEWA to make efficient decisions by transforming data into actionable intelligence.

5) Distribution Automation (DA): will provide advanced distribution system automation, protection, and control at low to medium voltages. DEWA is introducing new technologies that communicate with its Distribution Management System (DMS), Outage Management System (OMS), and other back-office systems to improve grid operation, stability, and performance.

6) Information Technology Infrastructure (ITI): is designed to support the effective operational capability and functionalities of the Smart Grid programmes with the hardware, software, local area networks, and data centres required.

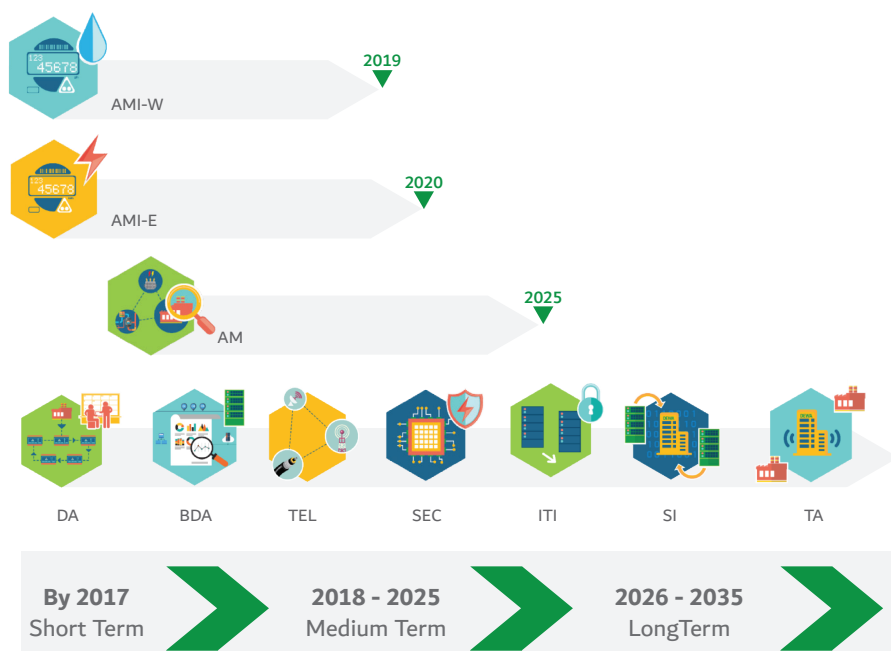
7) Transmission Automation (TA): focuses on improving and future-proofing the automation systems at transmission substations and control centres. TA will enable deployment of digital substations, enhance transmission network stability using wide area monitoring system, enforce Cyber Security in substation automation systems and investigate AI potential in transmission automation systems.

8) Security (SEC): provides guidelines, assessments, and implementation support to all Smart Grid programmes to ensure DEWA is implementing international best practices and world-class standards for Cyber Security.

9) System Integration (SI): integrates existing and new back-end systems, platforms and applications using an Enterprise Service Bus to collate, combine and transform data into a semantic data model that will share information between the Smart Grid systems.

10) Telecommunication (TEL): implements a common infrastructure across the entire enterprise based on interoperable and open standards. DEWA will operate a broad communication network that will interconnect equipment in the field with back-office systems.

Smart Grid Deployment Roadmap



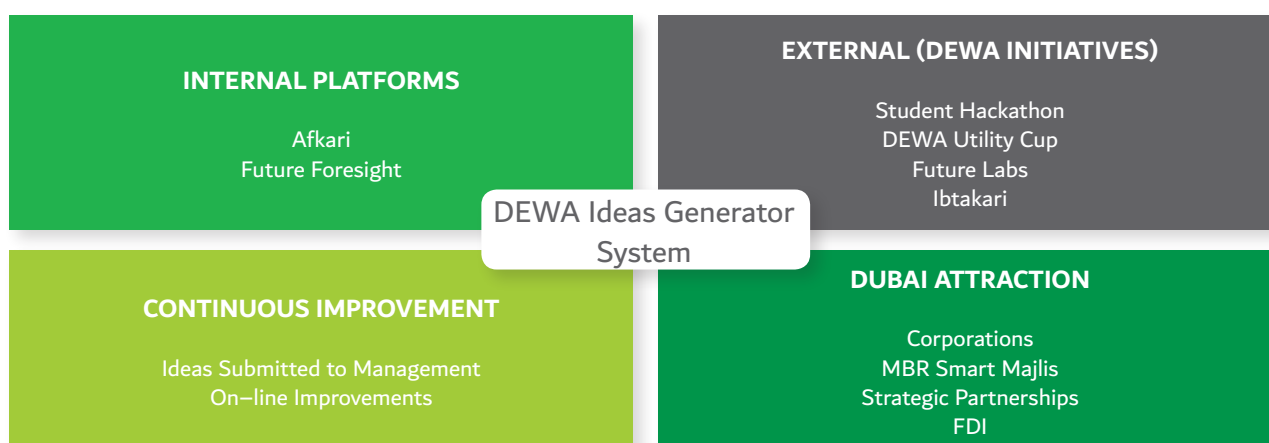
COLLABORATIVE FRAMEWORK FOR INNOVATION

DEWA has adopted an integrated, collaborative, experimental and broad approach to harnessing innovation in support of the UAE, Dubai and DEWA Vision statements. It has taken on the roles of patron, sponsor, collaborator and accelerator of innovation.

An important part of DEWA's commitment to asset management through innovation is a commitment to continuously creating platforms to come up with new ideas.

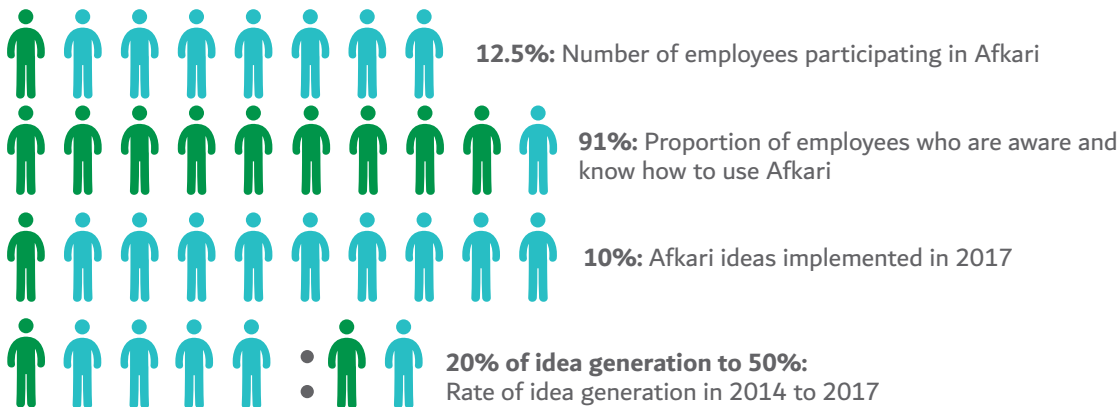
INNOVATION BEGINNINGS – GENERATING IDEAS

DEWA has established itself as a leader in creating a robust, collaborative, engaging platform for generating ideas. It has achieved leadership in this respect by mining ideas and solutions from a wide range of stakeholders, both internal and external, facilitated by diverse platforms to engage idea generators from students to industry partners to seasoned professionals and entrepreneurs.



STARTING UP IDEAS – AFKARI 2.0

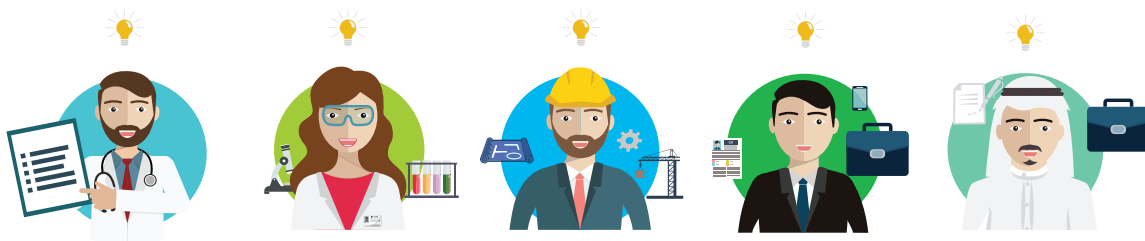
DEWA launched the Afkari (myDEWAideas) portal in 2015 to mine ideas from employees who represent the best in the industry and who understand, from first-hand experience, the strategic and operational challenges. In response to demand and review, Afkari 2.0 was launched with an Arabic interface to further accelerate participation.



To further encourage and support idea generation and participation in the Afkari scheme, DEWA launched the DEWA Innovator Series to celebrate innovators and to encourage innovation by learning from others. It has created platforms for sharing of ideas and experience through in-person and virtual exchanges. To date, 31 innovators from DEWA's staff who contributed towards enhancing DEWA's creativity and innovation to shape the future have participated. Short videos about DEWA's innovators focus on shedding light about the innovators, their motivation and their journey to success.

EBTIKARI – A CROWD SOURCING INNOVATION PLATFORM

The success of Afkari spawned the launch of Ebtikari in 2016 as an externally oriented idea generator –essentially a smart virtual platform for Open Innovation and Crowd Sourcing. It enables engineers, scientists and innovators in the UAE and abroad to engage in addressing key challenges posed by DEWA with its focus on solutions with the potential to be impactful in diverse communities. The key challenges posted for collective problem-solving focus on water and sustainability, refugee education and learning, and fostering resiliency to climate change.



“ DEWA is committed to exchanging skills, expertise and best international practices with our partners across several mutual areas of interest, including sustainability and corporate partnerships. ”

His Excellency Saeed Mohammed Al Tayer
Managing Director and Chief Executive Officer



“ DEWA’s Creativity Lab events are the ideal platform to exchange expertise and share best international practices in collaboration with international experts. ”

Waleed Salman
Executive Vice President, Business Development & Excellence at DEWA

IDEAS AMERICA

During the 75th Annual Ideas America Rewards ceremony in Arizona, USA, DEWA was recognised as a global leader in innovation and creativity after winning eight international awards and honourable mentions in nine categories.

DEWA won three gold prizes in the Idea of the Year category, and Team Idea of the Year. DEWA also received three silver awards: the performance excellence for savings per implemented suggestion award, the annual net savings per eligible employee, and performance excellence for total dollars saved. DEWA also received a silver award for Safety Idea of the Year.

DEWA also received the bronze award for the Best Programme Administrator, the Kudos Award, and honourable mentions for the participating team, and another in the Best Communication Excellence category, and an honourable mention in the Evaluator of the Year Award.

The list below recognises the employees who contributed to achieving each award:

Ideas America Competition 2017- Winners				
Name	Division	Suggestion Title	Category	Award
Matar Suhail Al Mehairi Essa AlAlili Seid Mekic Awad Al Jawawdah Islam Abuhamdah Jahangeer Azeez Noman Siddique MD Zahirul Islam Mohd AliMr.Ahmed Saeed Habib Sajwani	Distribution Power	Introducing Site rectifications / Instead of Replacing	Idea of the Year	Gold - Idea of the Year Award
Nasser Mohd Hussain Bin Lootah Mahmoud H R Baniabbasi Khalid Thani Obaid T Almehairi Jaber Khoory Abdulla Muhsen Ibrahim Syed Showkat Ali Ahmad Abdulrahman Al Gargawi	Generation	Gas Turbine Online Pre-filter replacement	Team Idea of the Year	Gold- Team Idea of the Year Award
Badusha Mohideen Haja .M	Distribution Power	Designing modular layered Arc protective Clothing for utility operators in Middle east hot & humid weather condition	Safety Idea of the Year	Silver- Safety Idea of the Year Award

Ideas America Competition 2017- Winners

Name	Division	Suggestion Title	Category	Award
Hassan Al Hammadi Abdulrahim M. Ashraf Nabila Al Shamsi Abdulla Alnadhari Sultan Ahmed Alhelo Shahzad A. Khan Gauhar Ali Aslam Mir Zaman Sher Bahadur	Distribution Power	Sliding Substation Roof	Team Idea	Honourable Mention-Team Idea of the Year Award
Aala Abdulaziz H. Abu Holy	Innovation & The Future	Best Programme Administrator		Bronze-Best Programme Administrator of the Year Award
Aysha Al Asam Shaikha Al Ketbi Wojood Al Mazrooei Alia Abdulla Alqemzi Majida Gheyath Mohammed Gheyath Maryam Ibrahim Mohammad Moosa Muna Ahmed Abdulla AlZaabi Maryam Saif Bin Touq Aala Abdulaziz H. Abu Holy Irfan Shahid	Innovation & The Future	Best Communication Excellence		Honourable Mention - Best Communication Excellence Award
Lutfi Ahmad Al-Aghbari Osama Hallol Mokeddem Mourad Nasrelden Aly Nasr Aly Sharif Albatayneh Mohammed Shafiquel Islam Usama Omar Mohamed Klf Radwan	Distribution Power	Evaluator of the Year		Honourable Mention - Evaluator of the Year Award
Abdul Jaleel K	Transmission Power	Recognition for special assistance provided throughout the year.		Kudos Award
DEWA Level	Innovation & The Future	Statistical Awards	Gold	Performance Excellence for Total Dollar Saved
			Silver	Annual Net Savings Per Eligible Employee
			Silver	Performance Excellence for Savings Per Implemented Suggestion

CULTURE OF INNOVATION – FOSTERING THE NEXT GENERATION OF INNOVATORS

In 2014, DEWA inaugurated Innovation Week to serve as a leading platform for raising awareness of the role and importance of innovation, creating a learning platform for cutting edge ideas and practices, and scanning and soliciting ideas and start-ups. Innovation Week has become a much anticipated and leading event in Dubai. Innovation Week has also enhanced DEWA's exposure internationally with Innovation Week events now attracting robust international interest and participation.

.....			
5	30	40	1,000+
DAYS	EVENTS AND	INNOVATIONS	PARTICIPANTS
.....	ACTIVITIES	in Energy and Water	
.....			

DEWA INNOVATION WEEK 2017

In adherence with the directives of HH Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, and in line with UAE Innovation Week, DEWA organised its annual Innovation Week and Exhibition that provides DEWA's employees, innovators and emerging businesses with information regarding our most recent innovative work. During the Innovation Week, DEWA showed future innovations related to electricity and water. Moreover, DEWA organised its Creativity and Innovation conference where International experts discussed innovation in sustainability, renewable energy, water and AI.

“ We want each and every government agency to become an incubator for innovation and to embrace its creative employees, support them, and turn their ideas into reality that benefits society. ”

His Highness Sheikh Mohammed bin Rashid Al Maktoum
Vice President and Prime Minister of the UAE & Ruler of Dubai

The events include an AI Hackathon for staff, participation from various sectors, robotics workshops, innovations by people of determination, as well as inspiring sessions about innovation and innovators, and specialized seminars about latest innovative technologies, 3D printing, smart grids and others. Moreover, DEWA is organizing innovative events in Zayed Innovation Oasis featuring various activities including the Zayed Year Exhibition in Innovation Oasis next to the Future Interactive Exhibition. Moreover, DEWA has exhibited nine startup projects and adopted two projects during innovation week.

DEWA SOLAR ROLLERS COMPETITION

DEWA hosts and sponsors a range of activities to encourage youth to engage in innovation and problem-solving addressing challenges and opportunities relevant to Dubai and communities around the world. In 2017, DEWA Solar Roller Competition was held in October for high schools and universities students. Three teams won cash prizes.

DEWA is already planning for the future and intensifying its innovation efforts by continuing the stream of activities to encourage creative problem-solving. DEWA will host the Solar Decathlon Middle East (SDME) in 2018 and 2020. The Decathlon aims to motivate university students and encourage them to innovate and use their creativity to design efficient and self-sufficient buildings.

DEWA HACKATHON EXPO 2020

DEWA held Hackathon based around three themes, Opportunity, Mobility, and Sustainability, attracting the best and brightest talent, with over 70 employees from different divisions, 10 teams 22 innovative ideas and finally three winning teams. The whole event was organised by DEWA in partnership with EXPO2020 team.



70

Employees from
Different Divisions

10

Teams

22

Innovative Ideas

3

Winning Teams

DEWA Hackathon Expo 2020 - Winners

Group Name	Idea Name	Team Members	Summary of Idea
1 - The Buzz	Harvesting energy from Noise	Lubna Zaitouni Abdulla Al Qassem Nilesh Upadhyay Sunil Mirchandani Qais Atef Mahmoud Hamda Al Suwaidi	Converting noise pollution to electrical energy - Harvesting energy from Noise
2- Al Wasl	Solar Powered Smart Compactor	Rashed Alkhaja Mouza Salem Alteneiji Sami Ullah Fiaz Qadar Yasir Saleem Hichem Cherif	We are expecting 300,000 visitors per day during EXPO 2020 and they are expected to generate 5.4 tons of trash per day. Solar powered Smart Compactors bins will compact the trash on site, thereby, increasing the capacity of the trash bin by 3 times. Once the bins are full, a signal will be sent to a robot-vehicle which will collect the compacted trash and take it to the trash recycle plant. The plant will convert the trash to energy that can be used later.
3- Amaan	Autonomous Drone Surveillance	Ali Al Blooshi Khalid Al Zarooni Ali Amjad Mohamed Al Harmoul Majid Altaher	We are trying to strive and live up to the expectations people will be having from the Expo 2020. As we all know, there will be around 25 million visits as estimated, and security and safety should be given the utmost priority. There will be a need for a very efficient, mobile and smart technology to cope up with the demand and standard, therefore the autonomous drone will fulfill those requirements. With wireless charging pads, that will charge the drone while it hovers right above it, the drone will be at the service of the guests throughout. It will be programmed with facial recognition and gesture recognition, and will be able to assist anyone lost with directions at the Expo venue. This will reduce the need for human interference which will aid in having the concerned personnel dedicate their time to focus on more important matters.

RAMMAS – FIRST CHATBOT & USE OF AI



DEWA partnered with Microsoft to develop its own Artificial Intelligence (AI)-based customer service platform called *Rammas*. DEWA launched Rammas in 2017 and became the first government agency to launch a virtual AI employee in both Arabic and English. This initiative is part of DEWA's larger strategic initiative to encourage and embed a culture of innovation throughout the organisation.

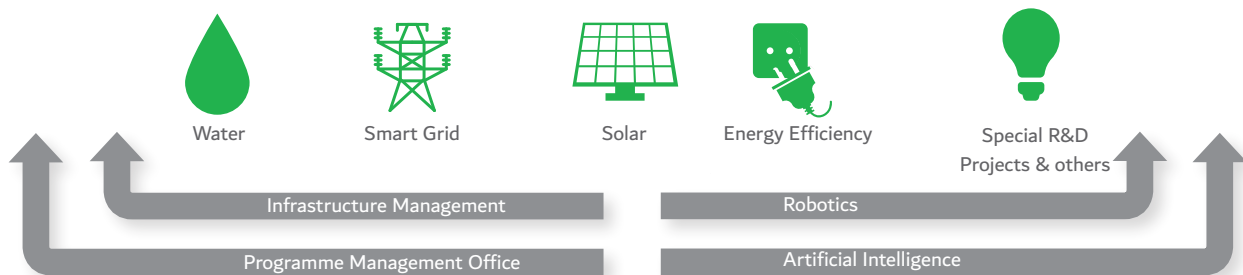
Rammas is the perfect example of how DEWA uses innovation and the latest technology to improve customer service. Rammas is available 24 hours a day and can handle any volume of simultaneous customer interactions. This initiative not only reduces overhead costs but also enhances the quality of life for customers by providing a convenient solution that does not require a time-consuming visit to a physical customer service centre or being on hold for extended periods of time while waiting for a customer service agent.



RESEARCH AND DEVELOPMENT

In a region where innovation has often been centred on adopting technology, DEWA is at the forefront of taking the next step and expanding Research and Development (R&D) to propel DEWA and the Emirate of Dubai to leadership in creating innovative solutions to regional and global challenges.

DEWA is committed to R&D and attraction of global talent while it continues to build the capacity for cutting-edge R&D. The DEWA Knowledge Centres, Reference and Research Service (iAsk) contribute to the development of research skills for DEWA Employees.



DEWA supports Dubai Future Accelerators, by streamlining R&D efforts to keep pace with rapid technical developments in operating systems, mobile computing, cloud computing, virtual environment, distribution systems and software engineering, Internet of Things, robotics, open and big data and the use of drones in the energy and water sectors, in order to achieve our vision and strategic objectives in a number of fields, including smart electricity and water networks.

DUBAI GREEN FUND



The AED 100 billion Dubai Green Fund was launched by HH Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, to encourage investment in green projects and foster Dubai's position as a global hub for the green economy. Dubai Green Fund is aligned with the Dubai Clean Energy Strategy 2050 for Dubai to have one of the lowest carbon footprints in the world by 2050. The Fund will offer loans to companies in the clean energy sector at reduced interest rates.

MOHAMMED BIN RASHID AL MAKTOUM SOLAR PARK

The Mohammed bin Rashid Al Maktoum Solar Park is a pioneering initiative to focus R&D on solar power. With state-of-the-art facilities, world-class talent, and partnerships with leading local and regional institutions, the solar park hosts a number of R&D centres for clean energy, drones, 3D printing, and solar desalination, with a total investment of AED 500 million. DEWA is further strengthening Dubai's future agenda by creating an interactive centre for innovation at the solar park. As the largest government business incubator in the world, this centre will develop national abilities in the energy sector while promoting business competitiveness through the creation of new technologies. It will support the development of the sector across the region. Dubai Future Foundation will oversee its implementation, to explore the strategic sectors of the UAE and Dubai.

1,000 MW
BY 2020

5,000 MW
BY 2030

6,500,000 TONS/YEAR

Carbon emissions saved



DEWA INNOVATION CENTRE

“ The Innovation Centre works to increase our use of renewable energy, while enhancing the competitiveness of the region by incubating new technologies and renewable energy solutions. The Centre also supports the development of energy in the region and increases the community's awareness about renewable and sustainable energy. ”

His Excellency Saeed Mohammed Al Tayer
Managing Director and Chief Executive Officer
Dubai Electricity & Water Authority

SIRB INITIATIVE – PIONEERING THE USE OF DRONES ACROSS DEWA OPERATIONS

DEWA took on the challenge of exploring the use of drones in its operations in 2015. The initiative focused on exploring the deployment of unmanned vehicles to enhance operational efficiency. Drones are deployed to accelerate operations, improve safety during regular network testing and maintenance, and improve accuracy of detecting failures. Drones are also being deployed to monitor generation, conduct field surveys of new projects and new connections for buildings and facilities.

Additionally, DEWA is leveraging drone technology to conduct thermal inspections and topographic surveys as part of its Sirb initiative, which was established in 2015.

Drone adoption by DEWA demonstrates its approach and strategy to innovation in general. In the first phase, DEWA scanned and adopted drones to enhance its operations and services. In the second phase, however, it is working with manufacturers and developers to innovate further and develop drones that are specific to the needs of DEWA and Dubai as well as the industry.

Planning Division

Plot Geotagging



Mission
Photographing Plots, assigning them with proper geotags and presenting them in an easy to understand way

Generation Division

Water Pollution
Detection & Water Aid



Mission
Scanning sea water for pollution, by using Infra Red Vision and highly zoomable cameras

Generation Division

Infrastructure Inspection

Mission



Perform Infra Red Inspection in inaccessible areas, determining temperature variance and thresholds in a report that goes to the group engineer

Generation Division

Water Sampling

Mission



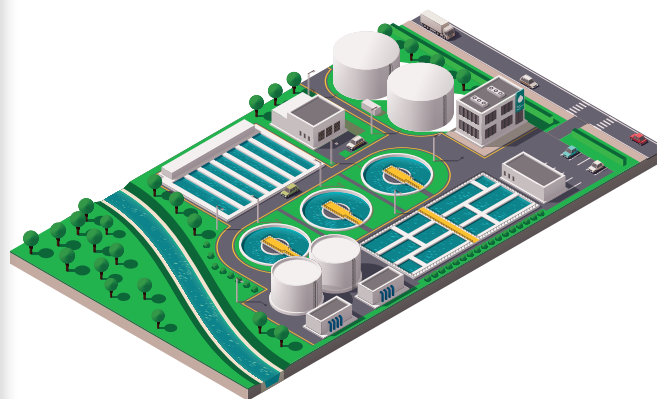
Perform sea water sampling (300ml) off the Jebel Ali Power Plant sea coast and bringing the sample back to ground

Transmission Division

Power Lines Inspection



Mission
Perform Infra Red hot spot inspections, photographing visual and structural damages on power lines and insulators



Distribution Division

Asset Inspection



Mission
Carrying out unmanned inspection/condition monitoring of overhead lines (OHL) and inspection of equipment at rehabilitation workshop

DRONES ENHANCING ASSET MANAGEMENT



DEWA is equipping drones with state-of-the-art upgradeable technologies including high-definition cameras equipped with night-vision, and laser technologies and GPS sensors to enable measurement of pressure, height, magnetic fields and ultrasound scanning. They are being deployed across DEWA to provide early detection of issues or failures through use of thermal imaging of overhead power lines. Early detection limits and improves risk management, reduces costs, enables faster response and greatly increases accuracy, thus resulting in better informed decision-making.

In addition to enhancing overall performance and industry leadership, DEWA's strategy for continuous improvement and innovation also continues to yield financial benefits.

DEWA ROBOT INSPECTOR

DEWA has launched the remote inspection system which combines autonomous robots with an immersive virtual reality experience. DEWA can now remotely conduct utilities inspection and maintenance enabling faster, safer and reduced cost asset management. DEWA robot can inspect and repair pipes without engineers having to be physically present in dangerous spaces or conditions. It is also yielding benefits in data collection, accurate reporting and predictive analytics.



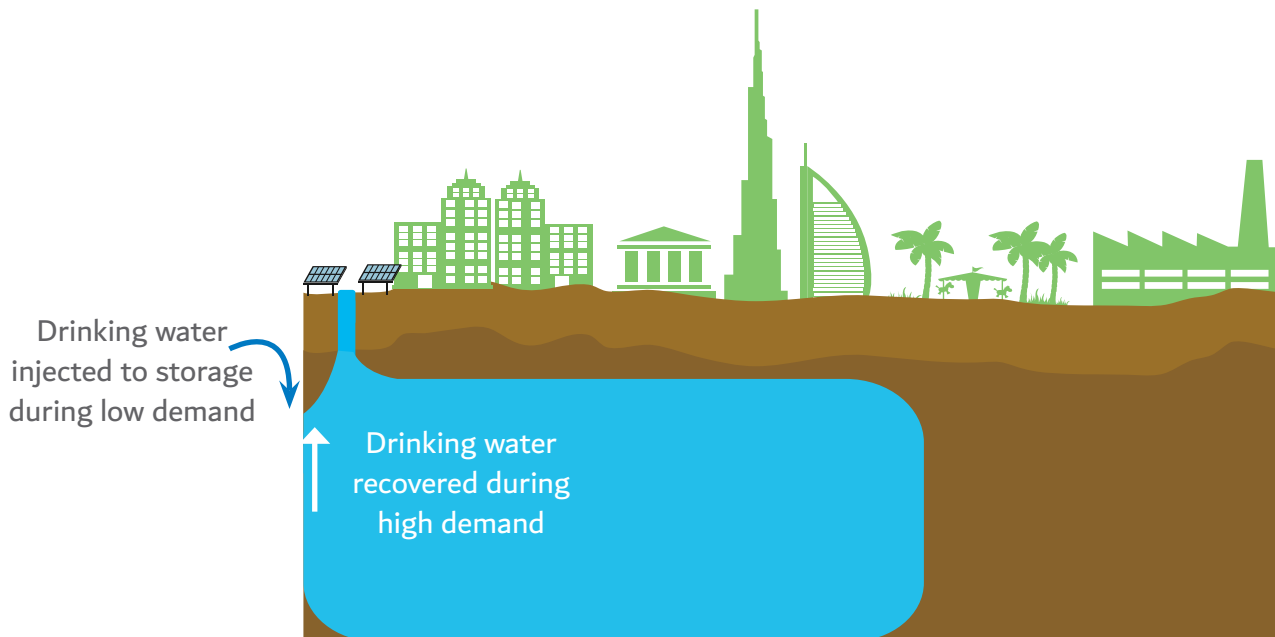
HOLENS



Microsoft HoloLens is a pair of mixed reality smart glasses developed and manufactured by Microsoft. It creates a unique end-to-end solution for DEWA energy plants with 3D representation of real data that will enhance asset management practices in our generation and transmission operations. This technology can also be used in confined spaces such as the combustion chambers, having continuous direct communication with the entire team. DEWA will use HoloLens to visualise their Smart Power Plant, provide an interactive 3D models for the plants' equipment, and remote expert assistance.

SOLAR-POWERED AQUIFER STORAGE AND RECOVERY PROJECT

After studies and consultation, DEWA is pursuing an aquifer storage and recovery project. The Aquifer Storage and Recovery (ASR) will serve several objectives. It will provide a strategic water storage for DEWA for use in strategic or emergency situations. Rather than expensive storage reservoirs, it will enable a clean and safe method for storing water while at the same time serving the purpose of protecting vital non renewable ground water resources.



PORTABLE DESALINATION UNIT

DEWA is developing a portable desalination unit that harnesses energy using solar photovoltaic panels. The R&D initiative was to prove the concept of producing fresh drinking water from brackish water, using renewable energy (mainly solar power) and reverse osmosis (RO) technologies, in-house capabilities, and R&D resources available at DEWA. The initiative improves access to drinking water, specifically in remote areas.



HYDROELECTRICITY AT HATTA – FIRST IN THE ARABIAN GULF REGION

DEWA will build a regionally first of its kind 250 megawatt hydroelectric power station to generate electricity, by making use of the existing water stored in the Hatta Dam, which can store up to 1,716 million gallons, and an upper reservoir that will be built in the mountain. During off-peak hours, turbines that use clean and cheap solar energy will pump water from the lower dam to the upper reservoir. During peak-load hours, when production costs are high, turbines operated by the speed of waterfall from the upper reservoir will be used to generate electricity and connect it to DEWA's grid. The efficiency of power production will reach 90% with a 90-second response to demand for electricity.



The hydroelectric plant, costing AED 1.92 billion will also serve to accelerate the development of Hatta and will be an integral element of the Hatta Comprehensive Development Plan, launched by HH Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai

“ We are working to achieve the UAE Vision 2021 to make the UAE one of the best countries in the world by 2021, supporting sustainable development, preserving natural resources and achieving economic, social and environmental development, in line with the aspirations of our wise leadership. ”

His Excellency Saeed Mohammed Al Tayer
Managing Director and Chief Executive Officer
Dubai Electricity and Water Authority

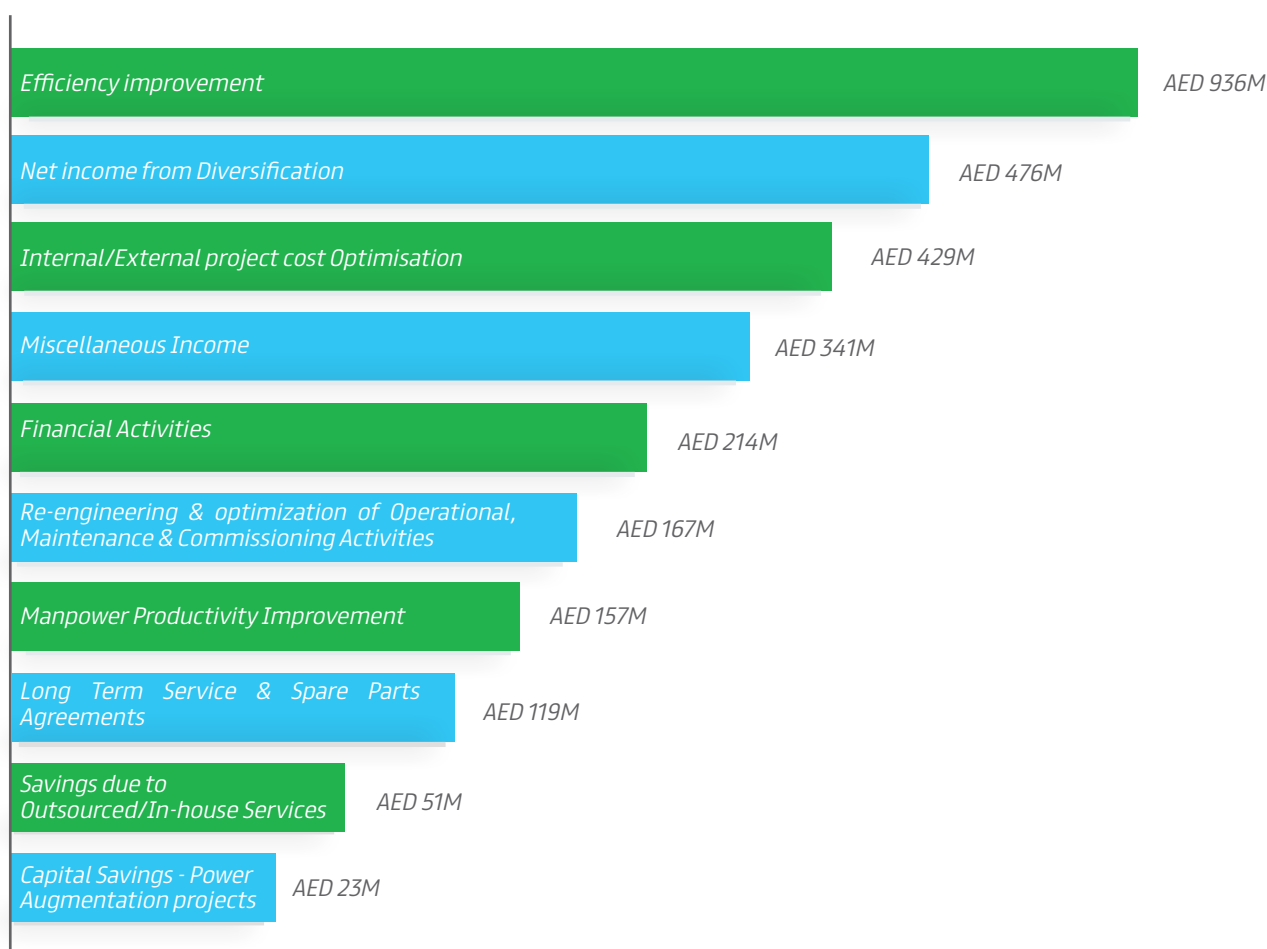
EXO SPRINT 10x THE FUTURE

DEWA continues to deepen and broaden innovation across the organisation. In partnership with Singularity University, its executive leadership and teams have undertaken a 10-week intensive programme on exponential organisations and the approach to harness the potential of innovation. Exo Sprint focused on a learning-by-doing, it provides a structured yet agile process for harnessing disruptive innovation. This exercise provided a huge value in formulating DEWA's 10x initiative that concentrated on 4 different areas: Dubai Solar, Energy Storage, AI and Digital Services.

INNOVATION YIELDS CONTINUOUS REWARDS

In addition to enhancing overall performance and industry leadership, DEWA's strategy for continuous improvement and innovation also continues to yield financial rewards.

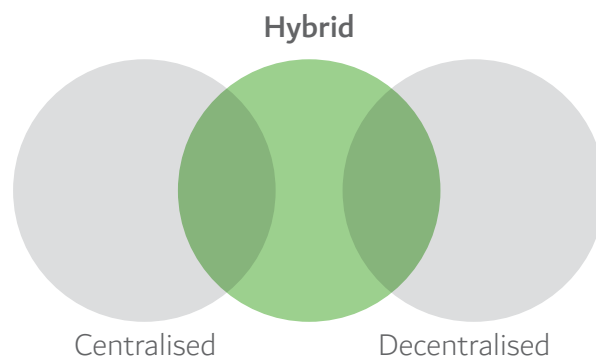
Value-Added from Resources Optimisation Programmes (2017):



HYBRID INNOVATION:

Innovation is recognised as a one of the top priorities for DEWA's management and perceived as one of the key capabilities to maintain competitiveness and create sustainable organisation. Therefore, we wanted to improve innovation culture and how to manage ideation in an effective way. The main challenge of innovation is not about generating ideas, our analysis shows that we had some good ideas generated, but the problem is how to speed selection, implementation and engage all stakeholders across DEWA effectively.

Considering innovation challenges and increasing complexity, we chose to transform the entire innovation management ecosystem (end-to-end) and move to a hybrid operating model to create market differentiation and competitive advantage.



A hybrid operating model provides an enhanced framework for improving the culture of innovation within DEWA, empowering divisions and boosting their innovation contribution. The new operating model for managing innovation focuses on the following:

- Increasing number of implemented ideas.
- Engaging all stakeholders in innovation.
- Enabling innovation across all divisions and encouraging employees to innovate.

INNOVATION LAB :

Innovation lab is a unique work space designed to optimise innovation, share information, encourage creativity, identify problems, and develop comprehensive solutions. The main purpose of innovation lab in DEWA is to promote a culture of innovation and to create an environment that motivates teams to develop ideas. The design team will be able to identify key needs within DEWA, generate innovative ideas (brainstorm), and design a model to illustrate the solution.



DUBAI FUTURE ACCELERATORS (DFA):

DFA is an intensive 9-week programme pairing the world's most exciting technology companies with leading government organisations to create transformational solutions.

DEWA's participation in the DFA Programme supports its ongoing efforts to establish the concept of innovation as a cornerstone of continuous growth, development, and excellence in performance. In collaboration with the DFA companies, DEWA is currently creating a new digital future for Dubai through Digital DEWA, its digital arm. This model will disrupt the entire business of public utilities by becoming the world's first digital utility, using autonomous systems for renewable-energy and its storage, expand the use of artificial intelligence, and provide digital services. DEWA participated in the four previous cycles of the Dubai Future Accelerators Programme. It signed 14 MoUs and successfully completed four pilot projects and is currently working on nine projects related to DEWA's services, its digital transformation and smart infrastructure.

FREE ELECTRONS:

Free Electrons is a global energy accelerators programme that provides an integrated framework to promote international cooperation and support innovation, to identify solutions to meet future global energy needs. DEWA is a key member of the international coalition that supports the programme. The programme sets the framework for the cooperation between 10 leading global utilities (DEWA from the UAE, AusNet from Australia, ESB from Ireland, EDP from Portugal, innogy from the European Union, Origin from Australia, Singapore Power, TEPCO from Japan, American Electric Power from the US, and CLP from Hong Kong) and 25 of the largest clean energy accelerators in the world. This supports DEWA's commitment to transform Dubai into an international pioneering hub for identifying and shaping future trends, enhancing the UAE's global contribution to innovation in clean energy.

The programme is scheduled to run over nine months, and includes three intensive workshops in four separate countries, that each run for over a week. Workshops take place in Silicon Valley in the USA, Europe, Asia, and Australia. The programme focuses on fundamentals such as tools and methods for innovation, funding strategies, business growth, leadership, and organisational development. DEWA has successfully completed Free Electrons cohort 1 in 2017 by closely working with 12 chosen startups. Currently cohort 2 is crossing its mid-stage and DEWA team is planning to visit the second module held in the Silicon Valley. 15 companies in the fields of clean energy, Internet of Things (IoT), digitisation, energy efficiency, and smart grids were chosen to participate in the second cohort.

GLOBAL RECOGNITION

DEWA's commitment to innovation is bearing fruit in the form of local and global recognition and awards. In the 2017 DGEP cycle, DEWA won six awards. In addition, it has continued to garner international recognition:



**Large Government
Entities Category 2017:**
Dubai Giving



**Large Government
Entities Category 2017:**
People-of-Determination-
Friendly Government Entity



**Large Government
Entities Category 2017:**
Best entity in Customers'
Happiness



**Large Government
Entities Category 2017:**
Best Entity in Innovative
Administrative Initiative



**Dubai Excellence Medals
Category 2017:**
Mohammed Javed –
Unknown Soldier



**Dubai Excellence Medals
Category 2017:**
Sara Ali Al Zarooni – Best
Field Employee



**Business Continuity
Management Certification
(ISO 22301) 2017**



**Team idea of the year in
2017 in Ideas
America Awards**



**Best Innovation and
Best Customer Focus,
UK's Best Business
Awards 2017**



**UK best Business Award
2017**



**5th international Best
practice competition
2017**



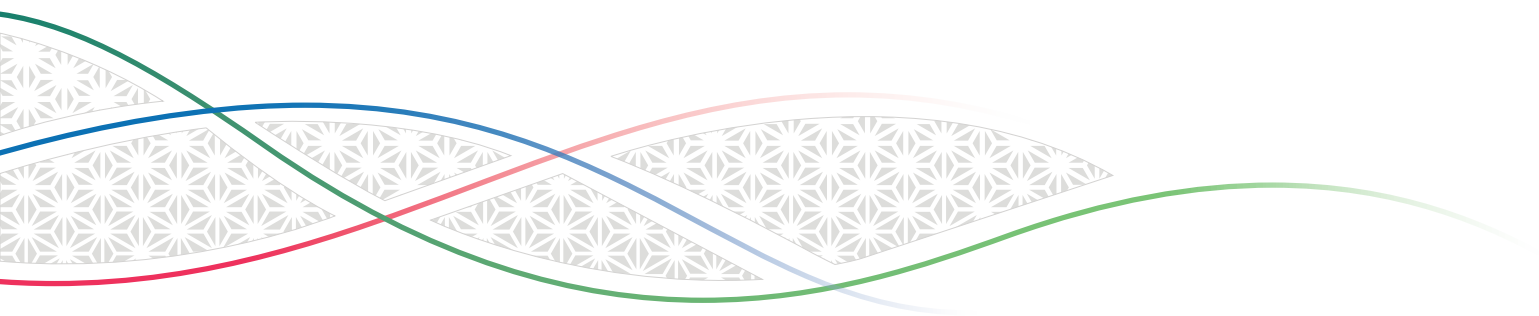
**UAE Ideas Competition
2017**

1ST
INNOVATION RANK
in Arab Countries Region

35TH RANK
GLOBAL INNOVATION
Index

+6 NUMBER OF PLACES
DUBAI MOVED UP
in Global Innovation Index 2016, and
maintained such in 2017.

5. EMBEDDING RISK MANAGEMENT



LEADING THE WAY IN ENTERPRISE RISK MANAGEMENT (ERM)

DEWA's ERM Framework has been developed based on ISO 31000:2009; the international standard for risk management commonly adopted by leading organisations. The Framework is implemented at both Corporate (top-down) and Divisional (bottom-up) levels to ensure proper alignment. ERM in DEWA is supported by SAP GRC 10.1 which is a leading technology for the enablement of real-time risk management.

Risk management is a key competency integral to DEWA's operations and the approach to risk management has been refined and customised to meet the challenges of its expanding asset base and operations.

INTEGRATED APPROACH TO ERM

DEWA's approach to Risk Management is based on three key elements; Visibility, Culture, and Capability. This is in alignment with DEWA's Strategy and its overall Governance model.



Integrated risk management approach at DEWA

THE ERM PROCESS

DEWA's ERM Process is based on the requirements set out in ISO 31000:2009. The 7-step process comprises of seven interrelated components as shown in Figure 2 below:



The ERM Process

DEWA's ERM process can be summarised in these stages:

Stage	Objective
Scope, Context, Criteria	Defining the scope for ERM; Understanding the internal and external context and developing the criteria for ERM.
Identify Risks	Systematically understanding the risks which may affect the achievement of DEWA's objectives
Analyse Risks	Assessing the risk severity following assessment of risk impact and likelihood
Evaluate Risks	Evaluating whether the risk is tolerable or intolerable based on DEWA's risk appetite
Treat Risks	Developing and approving a risk response strategy for intolerable risks

DEWA's ERM Process is implementable enterprise-wide including its core Divisions; Generation, Transmission, Distribution, I&TF and Water & Civil. Risk(s) pertaining to critical assets should be identified.



The ERM Process

Identifying Critical Assets

Critical assets are those that have the most significant impact on enterprise risk. Thus, the first step is to define and develop evaluation criteria to determine the criticality level of assets and then determine whether the asset(s) are critical or not. The steps involved are as follows:

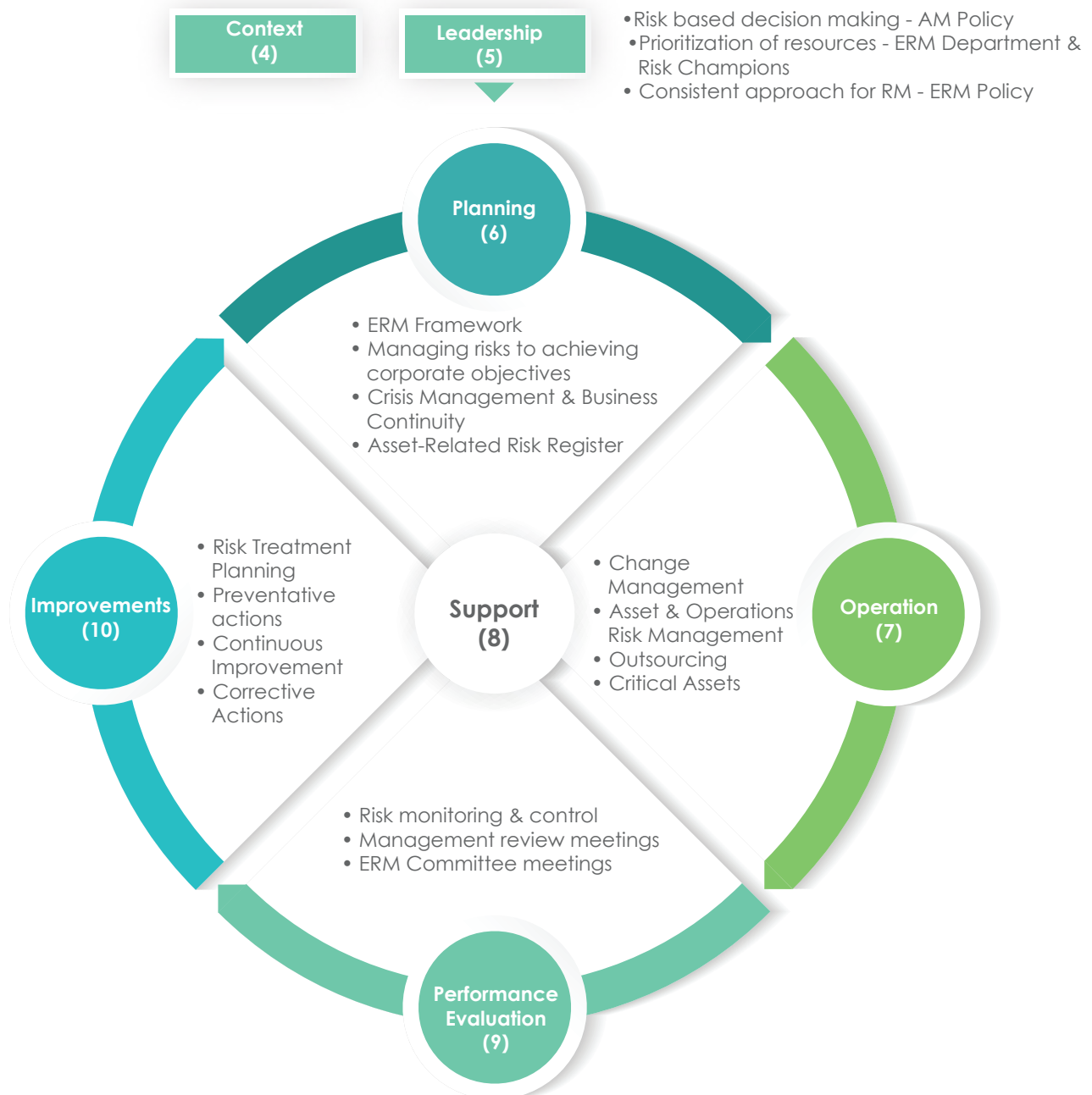
1. Develop and define evaluation criteria for determining DEWA's critical assets
2. Identify critical assets by applying evaluation criteria
3. For each critical asset, list functionality and potential worst case impact (if it was to fail)
4. Identify and prioritise the criticality of each asset based on its impact

Risk Identification

Asset-related risks are considered uncertainties that may cause a deviation in the performance of a critical asset or the DEWA network. Those deviations can be either positive or negative. In this step, the primary concern is to identify the risks related to the critical assets, the sources of the risks, and their possible consequences. All identified risks are captured on a Risk Register, which is then used to implement the subsequent stages of the ERM Process.

ERM AND ISO 55001 ALIGNMENT

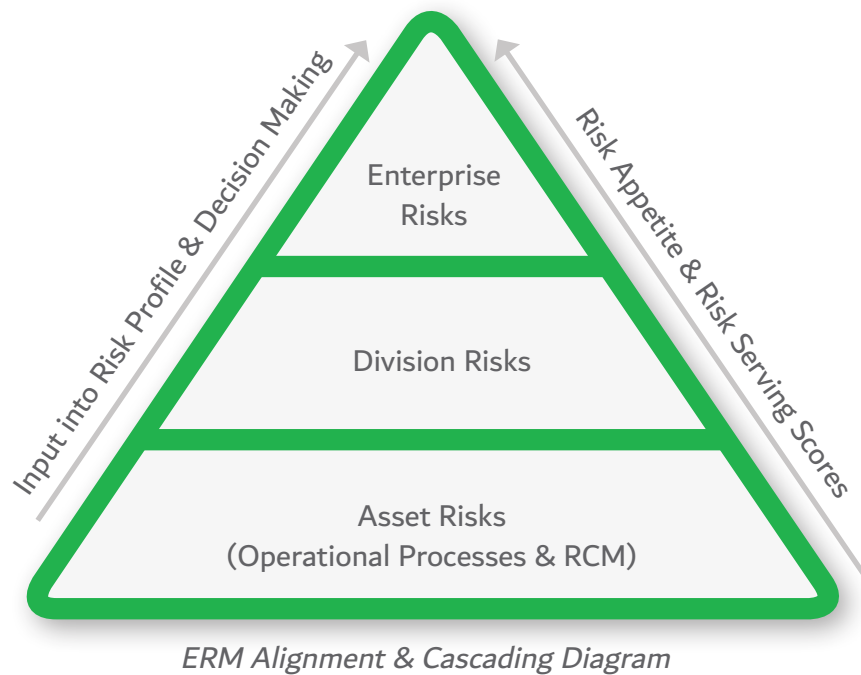
Risk management is at the centre of DEWA's asset management philosophy. DEWA has taken significant steps to integrate risk management into its asset management processes and to ensure effective decision making that increases asset value realisation and optimises interventions.



Integrated Risk based Asset Management

ASSET-LEVEL RISK MANAGEMENT

DEWA developed a bottom-up approach for identification and management of enterprise risks by focusing on the asset-related risks (operational processes & RCM) and the management of critical assets across the value chain.



DEWA is a pioneer in adopting RCM in 2009, becoming one of the first international utilities in the Middle East & North Africa region to use this methodology. RCM keeps asset reliability on its inherent level during its useful life while optimising asset performance, costs, and related risks. RCM uses Failure Mode Effects & Criticality Analysis (FMECA), a best practice methodology for risk analysis that is both cost effective and technically feasible. Additionally, RCM addresses safety and environmental risks, which are key components of our sustainability efforts. The biggest strength of RCM is that it is a dynamic methodology that incorporates feedback from assets to continuously improve and optimise processes. Since its implementation in 2009, DEWA's RCM has produced significant savings in avoided maintenance costs and maintenance activities over the entire asset life cycle .

Since adopting RCM in 2009, Transmission Power has streamlined its maintenance tasks, resulting in a reduction from 12,796 to 7,108 tasks, and a corresponding AED 1.95 million reduction in maintenance costs when compared to the old maintenance methodology.

DEWA also held knowledge sharing and awareness sessions on Reliability Centered Maintenance (RCM) with several government and private organisation such as the Federal Electricity & Water Authority (FEWA), SERCO Middle East, and Sharjah University, as well as Saudi Electricity Company.

ERM has demonstrated considerable achievements in the reduction of overall risk exposure for its most critical risks:

BUSINESS CONTINUITY MANAGEMENT (BCM)

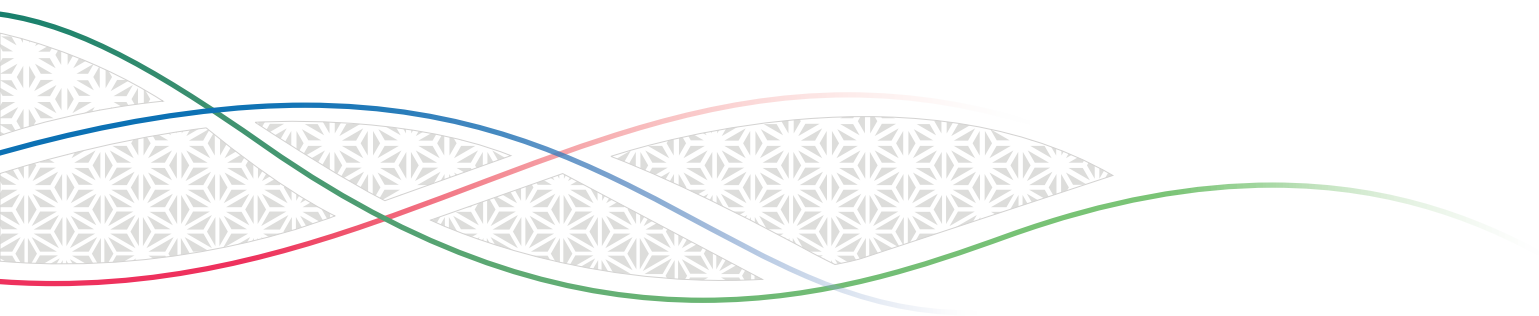
- DEWA is the first and only power utility to be certified in ISO 22301 for BCM.
- Total of 200 Platinum and Gold processes identified across all DEWA Divisions.
- Business Continuity Plans developed for every Division.
- 133 Mock Drills performed in 2017.
- 22 Business Continuity Champions trained across DEWA.



CRISIS MANAGEMENT (CM)

- DEWA Crisis Management Committee established.
- Vital crisis scenarios for DEWA identified.
- Crisis Management workshop held in December 2017 in collaboration with Dubai Government entities in compliance with NCEMA requirements.
- Crisis Command Centre (CCC) being upgraded to elevate and build DEWA's resilience capabilities.

6. COMMUNITY- CORPORATE SOCIAL RESPONSIBILITY



DEWA SERVES THE COMMUNITY

27 INITIATIVES

Rolled out in 2017

45,665 VOLUNTEERING

hours

92% SOCIETY HAPPINESS

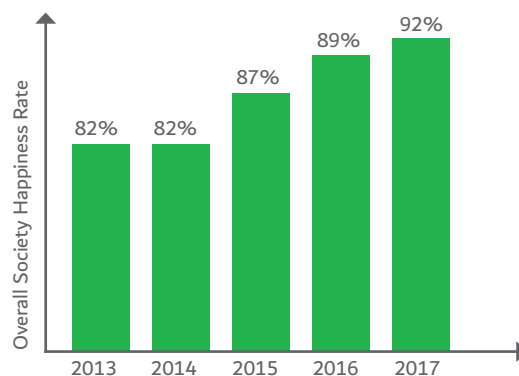
rate in 2017

DEWA recognises the mutual relationship that exists between itself as a utility, and the community of residents and businesses in Dubai. DEWA functions to serve the community, and the community functions because of DEWA services. In recognition of this, DEWA's asset management framework goes beyond core operational assets to include the community through a corporate social responsibility (CSR) programme. This CSR programme aligns with national, local and corporate strategies (UAE Vision 2021, Dubai Plan 2021 and DEWA Strategy 2021, respectively) as well as international best practices, including external audits by independent third parties.

In 2017, the CSR programme comprised a total of 27 social and humanitarian and volunteering initiatives, all of which are aligned with the directives of HH Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, to support local communities.

The programme is managed by 21 divisional representatives who are each responsible for the social and community initiatives related to their respective division. Initiatives range from Social Sustainable programmes such as DEWA innovation Centre, to International Programmes like "Risalat Khair" to different volunteering activities.

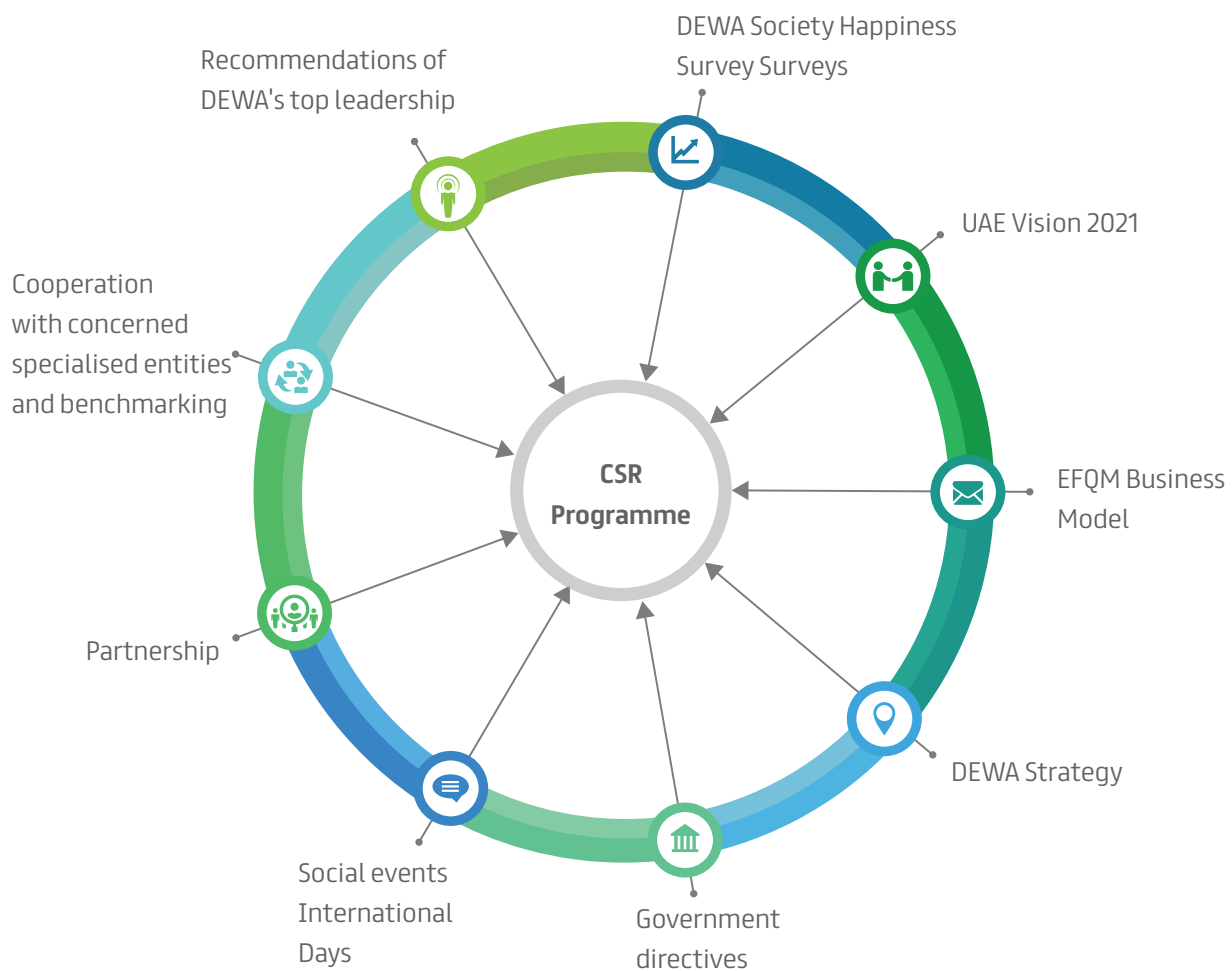
In 2017, DEWA successfully completed 95% of its annual CSR Plan initiatives. The impact of the initiatives contributed to improved "Overall society happiness" rate to 92%.



DEWA LISTENS TO THE COMMUNITY

DEWA relies on a two-way stakeholder engagement approach to listen and learn from the community so as to improve and optimise its CSR programme. At all levels of the organisation, DEWA maintains constant communication with the community through several channels to ensure its CSR initiatives serve the needs of the community.

DEWA's CSR Programme utilizes inputs from stakeholders both inside and out of DEWA. The figure below illustrates how DEWA collects and integrates input from key stakeholders to inform the CSR Programme:



FOSTERING COMMUNITY KNOWLEDGE

DEWA recognises the importance of knowledge to both the development of society as well as the future of DEWA's human assets. This recognition stems from its stakeholder communications at all levels concerning the establishment of a knowledge environment that promotes a passion for culture, reading, and knowledge in society.

In 2010, DEWA established a dedicated department to manage knowledge and reading activities, thus becoming one of the first organisations to dedicate a department for knowledge management as an independent unit focused on the implementation of reading and knowledge initiatives.

DEWA institutionalised reading through 14 initiatives targeting all its 11,512 employees. DEWA's reading agenda includes many integrated programmes and initiatives that work in parallel to promote reading over the next 10 years and make it a lifestyle and a daily habit among staff and their families. Some of these initiatives include knowledge sharing and Innovative Knowledge Labs for Future Generations, which have been developed in cooperation with multiple concerned organisations in the UAE.

Furthermore, DEWA has developed a policy for knowledge management and related strategies and approaches in line with the strategic initiative of Dubai Government in order to be a sustainable educational organisation. DEWA also adopted the legislative procedures of the National Reading Law to make reading an integral part of our work as a government organisation.

YEAR OF GIVING



DEWA supports the Year of Giving initiative, which was launched by HH Sheikh Khalifa bin Zayed Al Nahyan, President of the UAE, and carry out the directives of HH Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, to implement initiatives for the benefit of UAE society in the future, and work to establish a permanent change in the way the next generation serves the UAE positively.

The year of giving initiative reflects the rooted culture of good deeds in the hearts of Emiratis, and emphasises that the UAE leadership still adopts the approach of the late Sheikh Zayed bin Sultan Al Nahyan, who laid the foundations for humanitarian work in the UAE. At DEWA, we realise our responsibility to contribute to the Year of Giving.

In the Year of Giving, DEWA organised 27 social initiatives, which logged over 45,665 voluntary hours by employees. This reflects DEWA's commitment to achieve the UAE Vision 2021, to build a coherent and vibrant Emirati society, and the Dubai Plan 2021, to build an inclusive and cohesive society, that embraces common civic values. In its social initiatives, DEWA works according to an integrated organisational framework, from planning through to development and then the launch of the initiatives and then implementing and evaluating them. This is done according to the Global

Reporting Initiative (GRI), to ensure the sustainability of results.

DEWA's efforts in supporting social, economic and environmental sustainability in the Year of Giving continues in the Year of Zayed.

Following are the main outputs of DEWA's CSR efforts in 2017:

- Over 2.3 million people benefited from 27 initiatives in the Year of Giving
- 8 million people benefited from Suqia's programmes
- 45,665 volunteer hours by 1,847 volunteers from DEWA's staff
- 42 social partnerships with public and private organisations
- 92% society happiness level on DEWA's community initiatives
- 8% of DEWA's sales revenue to support community responsibility
- AED 100 million of DEWA's investments went to technical and engineering education for Emiratis in 3 years

Humanitarian and Charity Establishment launch projects to support the poor in Tajikistan

Volunteers from DEWA, UAE Water Aid Foundation (Suqia), and the Mohammed bin Rashid Al Maktoum Humanitarian and Charity Establishment (MBRHC), carried out their first campaign of 'Risalat Khair' in Tajikistan. This adheres to the framework of the Memorandum of Understanding (MoU) to implement joint humanitarian, sustainable and developmental initiatives outside the UAE. This also works to promote the values of voluntary work amongst the UAE, in accordance with the directives of the UAE's wise leadership, and to convey the message of good that the UAE carries to the people of the world, in line with the objectives of the Year of Giving and the Year of Zayed. The volunteer team contributed to the development and implementation of a series of sustainable projects for people from remote villages in Rasht district, which included distributing sewing machines to 400 families, to help women earn money by sewing and embroidering products for sale in neighbouring cities. The projects also included the distribution of 240 hives to make honey, to help 200 people from 30 families. They also distributed 25 trucks to support 200 people from the under-privileged families so that they can get a steady income, and distributed gifts to 300 children, and school bags and uniforms to 1,000 students and also gifts to 33 teachers in one of the schools in the region. The team distributed meat to 1,100 families, and Eid clothes, gifts and toys to 1,000 children. The team also opened 3 artesian wells and a water pump, established by Suqia, in the village of Kaznok. This is an addition to the well that was also established by Suqia in 2015 in the village of Nimaj, to help around 3,500 people. In addition, the team inaugurated another artesian well in Kaznok village to provide clean water for 3,000 people.

DEWA organises Al Khair Exhibition at Mirdif City Centre



DEWA organised the Al Khair Exhibition 2017 at Mirdif City Centre in Dubai, to highlight how prominent social organisations are serving society. This is part of DEWA's Corporate Social Responsibility (CSR) and its efforts to achieve the goals of the Year of Giving and instil a culture of giving in society. Social and humanitarian organisations that took part in the exhibition include the Mohammed bin Rashid Centre for Islamic Culture, the Sheikh Mohammed bin Rashid Centre for Cultural Understanding, the Community Development Authority, the Dubai Club for People of Determination, the Al Noor Training Centre for Persons with Disabilities, and the Dar Al Ber Society. Organisations showed their social and humanitarian services and products. These include services for People of Determination (people with disabilities), new Muslims, the needy, and other services and products that were appreciated by the visitors.

HH Sheikh Mansoor bin Mohammed bin Rashid Al Maktoum opens DEWA's Innovation Centre at Dubai Rehabilitation Centre for Disabled



HH Sheikh Mansoor bin Mohammed bin Rashid Al Maktoum, Chairman of the Higher Committee for the Protection of the Rights of Persons with Disabilities, has opened DEWA's Innovation Centre at the premises of the Dubai Rehabilitation Centre for Disabled (DRCD) in Al Qusais, Dubai. The centre reflects DEWA's commitment to social responsibility and the Year of Giving initiative. It symbolises DEWA's efforts to rehabilitate the disabled through effective initiatives and programmes. DEWA intends to provide better services to the disabled, based on clearly-defined strategies that are aligned to best international practices and standards. This helps DEWA achieve its Corporate Social Responsibility (CSR) strategy to promote the participation and inclusion of persons with disabilities in the community, while eliminating all obstacles that may stand in their way to positively engage in their working environment as creative and innovative individuals.

ASSET MANAGEMENT – KNOWLEDGE ASSETS

DEWA Knowledge Centres

The DEWA Knowledge Centres are spaces created for DEWA employees to read, learn, interact with others, create, innovate and share knowledge. They provide access to digital and hardcopy collections of books, journals, research papers, standards, DVDs and reports related to technical, business and soft skills subjects. Resources are available in Arabic and English with a small collection in Urdu. The Knowledge Centres support DEWA employees to continuously improve their skills and knowledge in line with DEWA's commitment to being a Learning Organisation.



H.H. Sheikh Mohammed bin Rashid Al Maktoum opening Al Quoz (Sustainable Building) Knowledge Centre



H.H. Sheikh Hamdan bin Rashid Al Maktoum opening Al Warsan Knowledge Centre



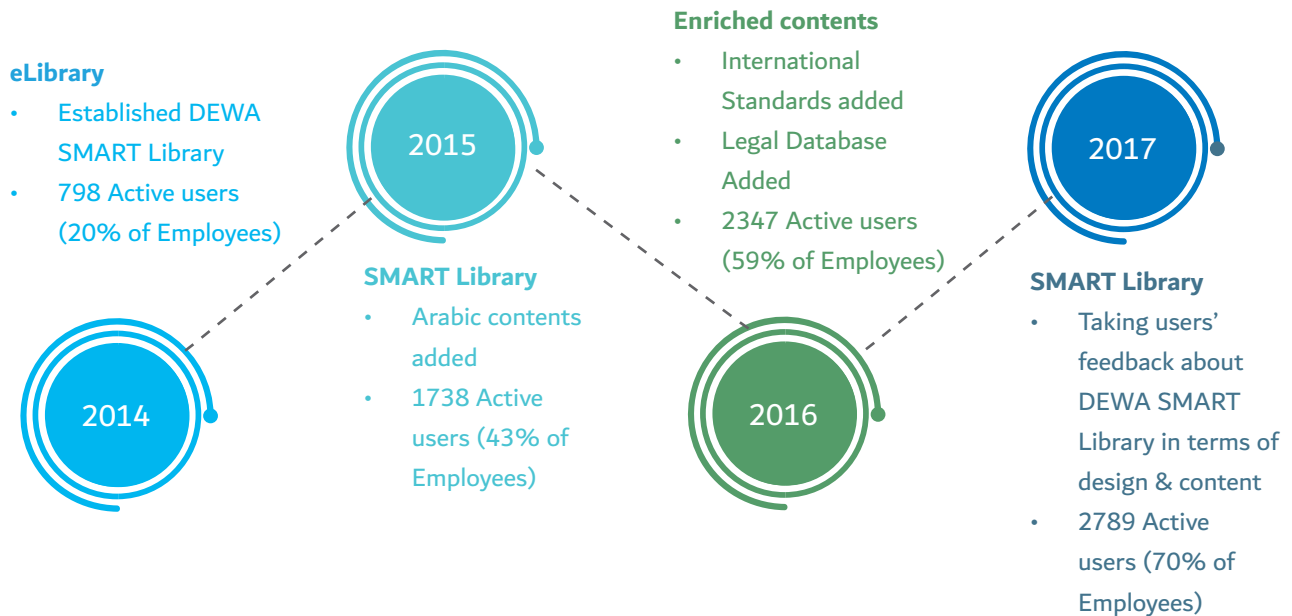
Children at Al Quoz Knowledge Centre



DEWA Academy LRC (Learning Resources Centre)

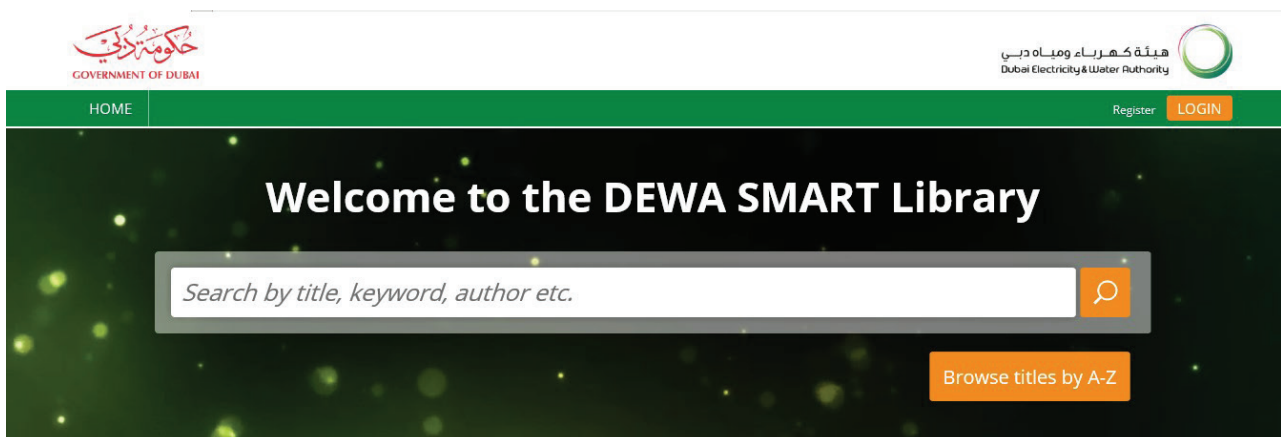
DEWA SMART Library

The DEWA SMART Library provides 24 hour access to internationally published digital information to all DEWA employees. The platform is accessible by desktop, laptops and other digital devices from both inside and outside of DEWA's network. Content of the SMART Library is constantly growing and includes eBooks, eJournals, Standards, Thesis and Dissertations, Legal information, in both Arabic and English.



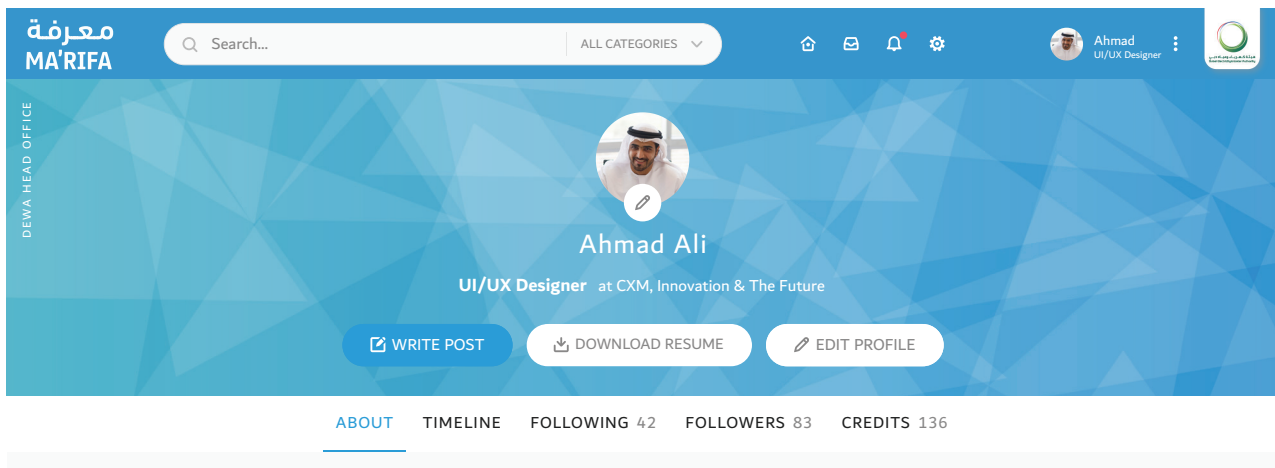
DEWA Online Catalogue

The DEWA Online Catalogue is an online portal that enables DEWA employees to search for and check availability of all reading materials located in the various knowledge centres. The portal is a comprehensive search tool that allows users to search for materials by author, topic, title. It also allows users to check availability of the materials in a specific location or DEWA Knowledge Centre. Employees can also make suggestions for the development of the collection, create their own reading lists and comment on items they have read.



Expert Locator Ma'rifa

This project aims to locate DEWA experts in different specialised areas and make use of their knowledge. Based on research, locating implicit knowledge is always a challenge for organisations. Locating the source of implicit knowledge which resides in people's brains is essential to effectively use it. Locating implicit knowledge will facilitate other related processes to knowledge management such as sharing, accessing, creating new knowledge etc. Expert Locator or Expertise Location is a well-recognised tool worldwide and is a best practice. Some of the organisations that have implemented Expert Locator internationally are Google, NASA Centre, IBM, and Adobe.



Expert Locator Dimensions



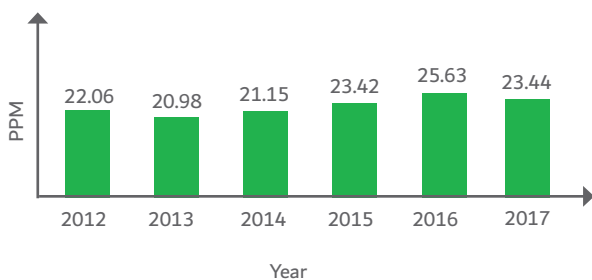
PROTECTING COMMUNITY ENVIRONMENTAL ASSETS

DEWA's commitment to the community also extends to protecting the environment that the community lives in, especially the air and the water.

Air

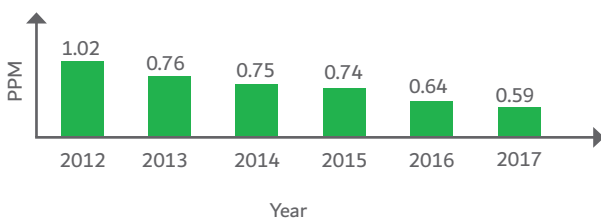
DEWA recognises the adverse effects of air pollution and strives to exceed the already strict emissions regulations that are in place in Dubai, especially to control Nitrogen Oxides (NO and NO₂ collectively referred to as NO_x) and Sulphur Dioxide (SO₂). DEWA has continuously improved the efficiency of its Generation assets to achieve excellence in emissions through a strategy that starts at the design stage. In 2017, DEWA's average annual NO_x emissions was just 23.44 ppm, inclusive of all asset types which is far lower than the requirements of the UAE Cabinet decision 12/2006 on protection of air from pollution (37 ppm) and even the European Union (27 ppm; Large Combustion Plant Directive 2001 for Plants Built After 2003). With regards to SO₂ emissions, DEWA maintains very low emissions by burning sweet natural gas as its primary fuel and procuring only low-sulphur (≤10 ppm) stand-by diesel fuel in line with the 2014 UAE Government Federal Regulations.

Average NO_x emissions (2012 to 2017)



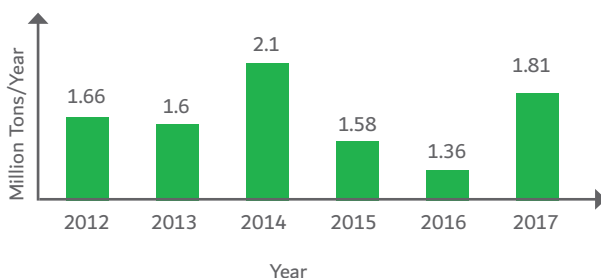
DEWA has drastically reduced NO_x emissions, which contribute to smog, through investments in the latest gas-turbine technologies to attain levels that are even lower than required in the European Union.

Average SO₂ emissions (2012 to 2017)



DEWA's reliance on clean natural gas has allowed it to achieve miniscule levels of SO₂ emissions, which can contribute to acid rain. In addition, DEWA has even switched to using low-sulphur diesel as the backup fuel to ensure clean air for the community.

Amount of CO₂ reduced (2012 to 2017)



In addition to improving the quality of the air, DEWA has reduced the amount of CO₂ emissions in their operations.

Water

DEWA's top priority is to guarantee the safety and quality of the water supply to Dubai. Water is the most critical component to public health, and therefore DEWA has implemented stringent quality control standards that go above and beyond the World Health Organisation's (WHO) drinking water guidelines. DEWA monitors water quality across its network, collecting water samples from pumping stations, reservoirs and well fields. Samples are tested by portable equipment on site for pH, turbidity, residual chlorine dioxide, and electrical conductivity, with further sophisticated testing performed in DEWA's Central Lab. DEWA has also made strong strides to ensure nearly 100% elimination of bromate from drinking water.

Water quality delivered by DEWA exceeds the highest global standards, ensuring the health of the community.

		WHO Guideline Values (Max)	DEWA Targets/ Guidelines	DEWA JAPS Potable Water Specification
Calcium	(mg/L)	-	10 ~ 25	17.7
Magnesium	(mg/L)	-	2 ~ 20	4.4
Sodium	(mg/L)	200	10 ~ 200	42.2
Chloride	(mg/L)	250	25 ~ 250	70.6
Sulfate	(mg/L)	250	2 ~ 35	7.8
Bicarbonate	(mg/L)	-	30 ~ 75	58.7
Nitrate	(mg/L)	50	≤ 50	0.08
Carbonate	(mg/L)	-	0~10	0.3
Fluoride	(mg/L)	1.5	≤ 1.5	0.04
Total Hardness	(mg/L)	500	40 ~ 120	62.5
Total Dissolved Solids	(mg/L)	1000	100 ~ 450	197

DEWA also recognises the importance of controlling water pollution by employing responsible methods for managing Generation process wastewater as well as desalination brine. DEWA does this by treating and reusing process wastewater for irrigation and other purposes on site and by closely monitoring the temperature and salinity at brine discharge points, as these can easily affect sensitive marine life in the Gulf. In 2017, DEWA reused a total of 87.2% of process waste water and treated sewage effluent at Jebel Ali Power Station Complex.

DEWA closely monitors all wastewater discharge in close collaboration with governmental regulators (Dubai Municipality) to control both the quantity and quality. This is possible because of significant investments into marine environmental monitoring. DEWA has installed a monitoring system that continuously tracks temperature, salinity, and pH and dissolved oxygen at 500 m, 1 km and 1.5 km away from the discharge points. In addition, it conducts bimonthly and quarterly ecological assessments of marine life at 300 m and 1.5 km away from the discharge points, as per the requirements of the wastewater discharge permits.

THE DISABILITY-FRIENDLY GOVERNMENT AUTHORITY FOR 2017

In line with The National Policy to Empower People of Determination (POD) that is launched by HH Sheikh Mohammed Bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, to create an inclusive community that ensures empowerment and a decent life for people of determination (and their families), as well as the 'My community a City of Everyone' initiative launched by HH Sheikh Hamdan Bin Mohammed Bin Rashid Al Maktoum, Crown Prince of Dubai and Chairman of the Executive Council of Dubai, to transform the Emirate into a disability-friendly City by 2020. DEWA is committed to becoming an Inclusive Organisation.

In 2017, DEWA has converted all its buildings and facilities to be accessible by People of Determination (POD) in accordance with the Dubai Code. DEWA has applied state-of-the-art emergency systems for POD at all locations connected to security and emergency services. Our website accessibility for POD scored 92%, and the accessibility average of our smart app. is 9/10; based on Smart Dubai Government Evaluation Report 2017.

DEWA mainstreamed disabilities in its internal strategies, policies, procedures, and operations. We adopt and adapt an international inclusive manual of Disability Mainstreaming to ensure right implementation, continuous support, empowerment and inclusion for our employees of determination in each step of their employment experience in DEWA. The POD Employee Happiness Survey in 2017 showed a happiness score of 95.6%.

DEWA continuously expresses support to Customers of Determination, through its inclusive service such as 'Ash'ir' (Arabic subtitle to signal); a service with a live video chat using sign language that enables hearing-impaired customers to directly communicate with DEWA's call centre staff through DEWA's smart app. We provide Braille versions of our Customer Guide Booklets created in coordination with the Emirates Association for the Blind. In cooperation with the Community Development Authority (CDA), DEWA launched a series of initiatives to reduce the burden of electricity costs for UAE Nationals and residents with low-income jobs, this also includes People of Determination who hold low-income jobs or come from less fortunate families.

In line with the objectives of the Year of Giving and in cooperation with the UAE Deaf Association, DEWA has provided different smart electronic devices to 30 families of People of Determination to help them with daily life activities, and other notification and vibration tools to support doorbells, telephones, fire alarms, security equipment, childcare, and others. The Happiness survey for our customers with determination in 2017 showed a happiness score of 90.7%.

We commit ourselves to consolidate the principles of social responsibility by launching social and developmental initiatives and projects, to meet the needs of all society, especially People of Determination. We have implemented 6 initiatives, and 4 sponsorships throughout 2017.

As a result of its serious efforts and genuine commitment, DEWA has been announced as the winner of the 'People-of-Determination-Friendly Government Entity' in the DGEP Awards 2017.

IDEAL COMMUNITY HOMES – SUSTAINABILITY



'Ideal Home' is a pioneering and integrated public initiative launched by DEWA in 2016, in cooperation with seven Government entities: Dubai Police, Dubai Municipality, Dubai Health Authority, Dubai Ambulance Corporation, Dubai Civil Defense, Dubai Smart Government, and Community Development Authority, to make Dubai the happiest and smartest city in the world. In 2017 two more Government entities have joined the initiative; these are: Roads and Transport Authority, and the General Directorate of Residency & Foreign Affairs.

The overriding goal of the initiative is to inculcate and nurture a culture of an ideal home environment amongst families in Dubai through the fulfillment of varied and integrated requirements of ten government partners. This ensured identifying and recognising those households that achieve highest standards of health and safety, environment, security, social responsibility, smart adoption, sustainability, emergency preparedness and abiding by the residency laws.

The objectives are:

- Raise, promote and enhance customer awareness and engagement levels about the best practices at homes.
- Achieve highest standards in sustainable living by making it an embedded culture within households.
- Enhance efficiency levels by maximising partnership opportunities for the purpose of provisioning unified government services.
- Enable and provide for customer happiness through innovative services.
- Support Government of Dubai vision effectively.

The united efforts of all the participating Government entities of the Ideal Home initiative achieved a score of 96% in Customer Satisfaction and Trust Level in the second cycle.

The total electricity savings achieved in the past two years is 902 KWh. Likewise, 18 million gallons of water was conserved. The conservation of both electricity and water contributed to the reduction of approximately 850 tons of carbon dioxide emissions, which translates to about AED 1.2 Million in savings.

DEWA'S HUMAN ASSETS ENRICH THE COMMUNITY

DEWA is one of Dubai's largest employers, with over 11,500 employees, and thus has a significant influence on the community through its employees at the individual level as well. Through the skills and background of its human assets, DEWA can contribute significantly to enriching the community. This includes promoting Emiratisation, raising awareness of sustainability and direct volunteering activities in the community. Notably, the majority of DEWA's employees have a background in engineering, making DEWA an important hub for engineering and an important source of innovation.

Volunteering

DEWA strongly encourages volunteering among its employees in causes such as sustainability and knowledge. This encouragement has led to a continuous increase in the total number of volunteer hours by DEWA employees. In 2017, DEWA employees contributed to a total of 45,665 volunteer hours. This activity has had an impact not only on the community but also on the employees themselves, as it provides them the opportunity to make a difference on a personal level and connect with the community in a meaningful manner.

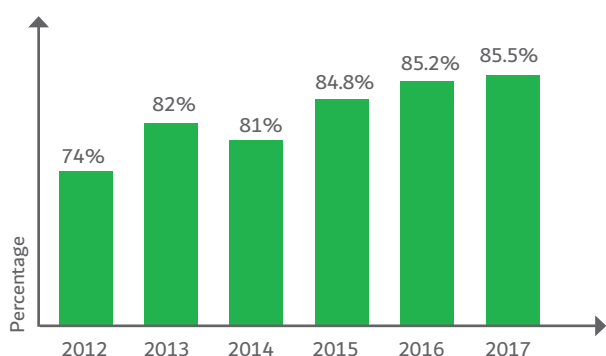
Year	2014	2015	2016	2017
Target	7,500	8,000	8,500	15,000
Actual	8,039	13,560	12,922	45,665

Target & Actual Volunteering Hours by DEWA Employees (2014-2017)

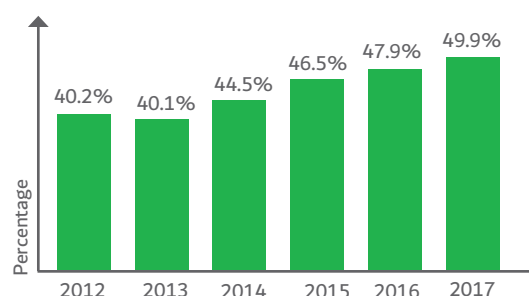
DRIVING EMIRATISATION

DEWA has maintained a continuous focus on increasing the proportion of Emiratis among its employees as a part of its responsibility to the generations to come. To this end, DEWA's strategy is to actively invest in the Emirati workforce through targeted training and knowledge transfer. Through these efforts, in 2017, UAE nationals accounted for 85.5% of top management and leadership positions, 49.9% of middle management positions, 36.21% of non-supervisory positions, and 44% of all new hires.

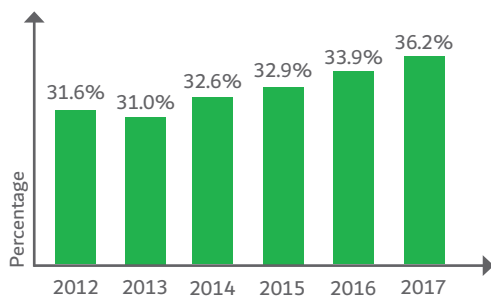
Emiratisation Rate in Leadership



Emiratisation Rate in Middle Management



Emiratization Rate for Non-Supervisory



In addition, DEWA plays an active role in encouraging skill development by providing scholarships and training courses at leading universities, colleges and institutes around the world. Additionally, DEWA offers a number of scholarship programmes for local high school students in engineering fields to train the next generation of its workforce, particularly in relevant technical qualifications.

“We believe that Excellence is not a destination, it is a continuous journey that never ends..”

GLOSSARY OF TERMS

AED:	Arab Emirates Dirham	GIS:	Geographic Information System
AHC:	Asset Health Centre	GW:	Giga Watt
AI:	Artificial Intelligence	GWh:	Giga Watt Hour
AM:	Asset Management	HR:	Human Resources
AMI:	Advanced Metering Infrastructure	HIC:	Higher Innovation Committee
AMF:	Asset Management Framework	IEA:	International Energy Agency
AMS:	Asset Management System	IEC:	Innovation Evaluation Committee
AMI:	Advanced Metering Infrastructure	IMS:	Integrated Management System
APQC:	American Productivity & Quality Center	IP:	Intellectual Property
ASR:	Aquifer Storage and Recovery	IPxx:	Internal Processes strategic objective
ATD:	Association for Talent Development	IPP:	Independent Power Producer
BCM:	Business Continuity Management	IPR:	Intellectual Property Right
BDA:	Big Data and Analytics	ISO:	International Organisation for Standardisation
BS&HR:	Business Support & Human Resources	IT:	Information Technology
BD&E:	Business Development & Excellence	ITI:	Information Technology Infrastructure
BS:	Billing Services	I&TF:	Innovation & The Future
BSC:	Balanced Score Card	IR:	Infra Red
BSI:	British Standards Institution	IRM:	The Institute of Risk Management of the UK
BSP:	Base System Peak	JAPS:	Jebel Ali Power Station
BTU:	British Thermal Unit	JVs:	Joint Ventures
BPST:	Back Pressure Steam Turbine	KPI:	Key Performance Indicator
CCTV:	Closed Circuit Television	kM:	Kilometre
CFO:	Chief Financial Officer	kV:	Kilo Volt
CH:	Customer Happiness	kW:	Kilo Watt
CHI:	Customer Happiness Index	kWh:	Kilo Watt Hour
CMI:	Customer Minutes Interrupted	LGxx:	Learning & Growth strategic objective
CML:	Customer Minutes Lost	LTE:	Life Time Extension
CO2:	Carbon Dioxide	M Services:	Mobile Services
CSR:	Corporate Social Responsibility	M&A:	Mergers and Acquisitions
DA:	Distribution Automation	MBRHC:	Mohammed Bin Rashid Al Maktoum Humanitarian and Charity Establishment
DCS:	Distributed Control Systems	MD&CEO:	Managing Director & Chief Executive Officer of DEWA
DFA:	Dubai Future Accelerators	MENA:	Middle East & North Africa
DIC:	Divisional Innovation Committees	MIG:	Million Imperial Gallons
DP:	Distribution Power Division	MIGD:	Million Imperial Gallons Per Day
DGEP:	Dubai Government Excellence Program	MoU:	Memorandum of Understanding
DGEP 4G:	Dubai Government Excellence Program 4th Generation criteria	MS:	Mystery Shopper
DRRG:	Distributed Renewable Resources Generators	MSF:	Multi Stage Flash
DSM:	Demand Side Management	MW:	Mega Watt
E Recruitment:	Electronic Recruitment	MWh:	Mega Watt Hour
E Services:	Electronic Services	NCEMA:	National Crisis and Emergency Management Authority
EFQM:	European Foundation for Quality Management	NERC:	North American Electric Reliability Corporation
ERM:	Enterprise Risk Management	OEM:	Original Equipment Manufacturer
ERP:	Enterprise Resource Planning	OHL:	Overhead Lines
EV:	Electric Vehicles	OPC:	Open Platform Communication
EVP:	Executive Vice President	OSI:	OSIsoft Company USA
GD:	Generation Division		
GDP:	Gross Domestic Product		

P&WP:	Power & Water Planning Division
PI:	Data management software by OSI - USA
PMI:	Project Management Institute
POD	People of Determination
PPM:	Parts Per Million
PSEG:	Public Service Electric and Gas Company of the USA
PV:	Photovoltaic
R&D:	Research & Development
RCM:	Reliability Centered Maintenance
RLA:	Remaining Life Assessment
RM:	Risk Management
RO:	Reverse Osmosis
Sxx:	Stakeholders strategic objective
SAIDI:	System Average Interruption Duration Index
SAIFI:	System Average Interruption Frequency Index
SAP:	System, Applications and Products
SCADA:	Supervisory Control and Data Acquisition
SDG:	Smart Dubai Govenment
SERCO:	UK-based Public Services provider
SHRM:	The Society for Human Resource Management
SINCAL:	Siemens Network CALculation
S&GC:	Strategy & Government Communications
Suqia:	UAE Water Aid Foundation
SEC:	Security
SI:	System Integration
SPP:	Smart Power Plant
TA:	Transmission Automation
TBLxx:	Triple Bottom Line strategic objective
TEL:	Telecommunication
TNA:	Training Needs Analysis
TP:	Transmission Power Division
TES:	Thermal Energy Storage
TESTIAC:	Thermal Energy Storage And Turbine Inlet Air Cooling
UFW:	Unaccounted For Water
UNEP:	United Nations Environment Programme
VFD:	Variable Frequency Drive
VP:	Vice President
W&C:	Water & Civil Division
WHO:	World Health Organisation



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