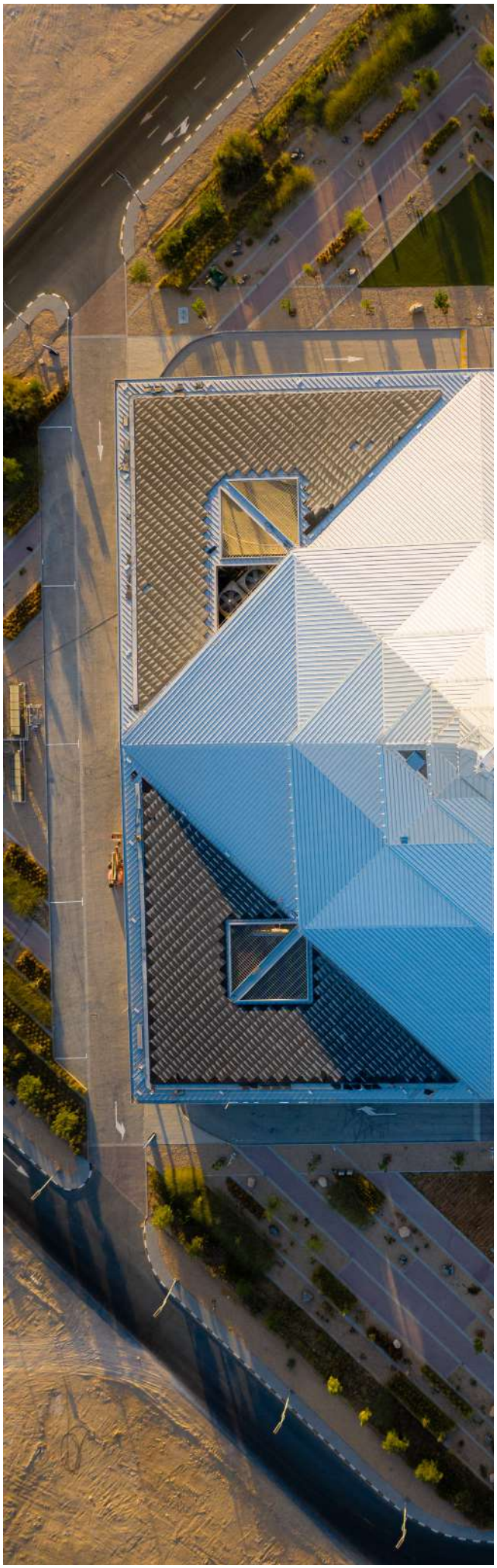
حكومة دبي
GOVERNMENT OF DUBAI

هيئة كهرباء ومياه دبي
Dubai Electricity & Water Authority

DUBAI ELECTRICITY & WATER AUTHORITY (PJSC) SUSTAINABILITY REPORT 2021



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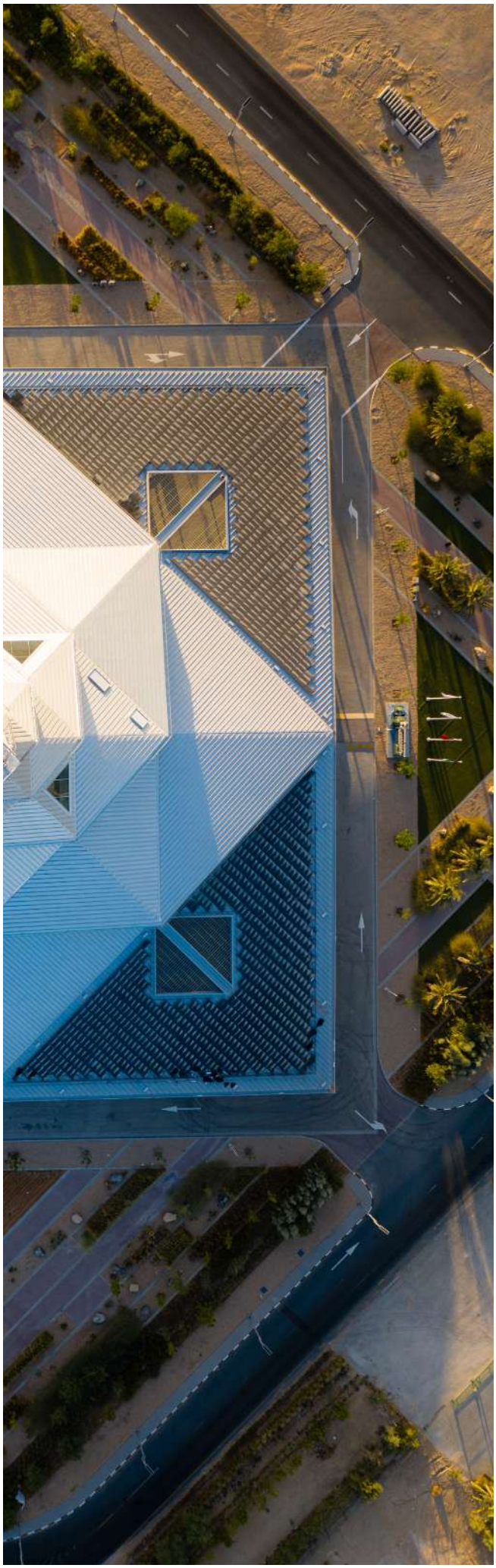

CHAPTER 05 | CLIMATE CHANGE

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About This Report and Reporting Practices (GRI 2-3,2-4,2-5)

This is the ninth annual sustainability report published by DEWA PJSC. It presents our economic, environmental and social performance and focuses on our commitments, results and future goals, enabling us to communicate our sustainable performance to our stakeholders.

Scope

The data and statements contained in this report relate to and include all of DEWA's core operations and processes under DEWA's management control, unless otherwise stated. Data from subsidiaries, joint ventures and suppliers have not been included in this report, unless otherwise stated. The performance data provided in the report covers the reporting period from January 1st to December 31st, 2021. Ongoing initiatives commenced in earlier years as well as information deemed significant from our previous reports have also been included in this report. Note that there have not been any restatements or major changes to data measurement used compared to those employed in the previous report.

Defining the Content

DEWA's 2021 Sustainability Report provides information on our sustainability performance in a reasonable and balanced manner and is addressed to all our stakeholders. DEWA is committed to reporting on its sustainability performance annually, and this report follows the 2020 Sustainability Report. This report has been prepared in accordance with:

- **GRI:** DEWA's Sustainability Report 2021 has been prepared according to GRI Standards: Core option and GRI G4 Electric Utilities Sector Disclosures.
- **United Nations Global Compact (UNGC):** DEWA is a member of the UNGC local network.. DEWA issues its annual Communication on Progress (COP) through the Sustainability Report. The 2021 COP is found in the Sustainable Development chapter of this report.
- **United Nations Sustainable Development Goals (SDGs):** DEWA annually communicate its progress and contributions to the UNSDGs. Details on DEWA's approach to the SDGs can be found in the Sustainable Development chapter of this report. It further aligns the SDGs to the reported GRI indicators which can be found in the Content Index.
- **Task Force on Climate-Related Financial Disclosures (TCFD):** DEWA took into account some of the TCFD recommendations in preparing the report.

External Assurance

Believing that transparency is the result of providing comprehensive, credible and comparable information, we have again submitted the 2021 Sustainability Report for external assurance (at a limited level of assurance) to an independent assurance provider in accordance with the International Assurance Standard 3000 (ISAE 3000).

Your comments and feedback

We constantly seek to evolve and improve our sustainability performance. Therefore, we greatly value our stakeholders' feedback. We welcome your comments, questions, or suggestions for improvement regarding our ninth sustainability report. Please write to us : sustainability@dewa.gov.ae. Please note that an electronic version of this report can be found on our website:

PURPOSE

Providing globally leading sustainable, efficient, and reliable power and water services, and related innovative smart solutions

VISION

A globally leading sustainable innovative corporation

MISSION

We are committed and aligned to Dubai's 8 Principles and 50-Year Charter supporting the UAE's directions through the delivery of global leading services and innovative energy solutions enriching lives and ensuring the happiness of our stakeholders in a sustainable manner

MOTTO

For generations to come

VALUES

- Stakeholder Happiness
- Sustainability
- Innovation
- Excellence
- Good Governance

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

“Our forefathers and our ancestors lived in this land and coexisted with its environment, on land and at sea, and instinctively realised the need to preserve it.”

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

"We have to strike a balance of responsibility between our duty to update other sources of energy, protecting our environment and ensuring a proper legacy for the next generation."

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

“The UAE is among the first countries in the region to give priority to environmental protection and easing climate change by adopting green policies.”

His Excellency

Saeed Mohammed Al Tayer

MD & CEO, Dubai Electricity and Water Authority

Message from MD & CEO of Dubai Electricity and Water Authority (GRI 2-22)

The UAE has become a role model in promoting sustainable development in line with the vision and directives of the wise leadership of His Highness Sheikh Mohamed 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, to enhance climate action and support the shift towards a green economy. In October 2021, the UAE announced its Net Zero by 2050 strategic initiative, becoming the first country in the Middle East and North Africa to launch this strategic initiative.

In Dubai, we have a clear direction for the energy sector based on the Dubai Clean Energy Strategy 2050 and the Dubai Net Zero Carbon Emissions Strategy 2050 to provide 100% of the energy production capacity from clean energy sources by 2050. Dubai Government works closely with organisations that are addressing climate change and its impact and has set mitigation and adaptation plans for the Emirate. One of these plans is the Dubai Climate Change Adaptation Strategy.

At Dubai Electricity and Water Authority (DEWA), our plans align with this strategy based on our Climate Change Resilience Plan to assess and realistically forecast climate change. The plan identifies existing mitigation measures, preventative controls, and measures to ensure resilience in the future, as well as address the impact of various climate change drivers.

DEWA implements pioneering projects to diversify Dubai's clean and renewable energy sources to include all available technologies. These include solar photovoltaic panels, Concentrated Solar Power, green hydrogen production using solar power, and pumped-storage water technology. Today, around 11.5% of DEWA's energy capacity comes from clean sources, and this is expected to reach around 14% by the end of 2022. Despite the pandemic, we maintained our business continuity by implementing our sustainable projects and initiatives, as well as mitigating climate change by balancing economic development and preserving a clean, healthy, safe, and sustainable environment.

We value innovation and consider it a key pillar for developing our services, initiatives, strategies and work plans. DEWA adopts the latest smart tools and technologies to raise the capacity and efficiency of power generation, transmission, distribution and control networks. Over the past decade, DEWA has reduced the Customer Minutes Lost (CML) in Dubai from 6.88 minutes per year in 2012 to just 1.43 minutes in 2021, which is the lowest rate worldwide. This result exceeded DEWA's target of 1.6 minutes in 2021. In 2012, the percentage of losses in the water transmission and distribution network was 10.9%, and in 2021, this percentage reached 5.3%, compared to around 15% in North America. Meanwhile, the percentage of losses in the electricity transmission and distribution networks in the Dubai was 3.3%, compared to 6-7% in Europe and the US. The availability and reliability of power generation plants in the summer reached 99.66% and 99.98% respectively, which is one of the highest global rates.

DEWA has also raised fuel consumption efficiency in production units to about 90% to compete with the best international levels. DEWA's application of the latest innovative technologies also improved production efficiency by 37.63% between 2006 and 2021, which led to significant financial savings and a 32% reduction in carbon emissions. These efforts have contributed to achieving substantial reductions in carbon emissions in Dubai. Net CO2 emissions in the Emirate decreased by 22% in 2019 and 33% in 2020 compared to Business As Usual (BAU), significantly exceeding the target of the Dubai Carbon Abatement Strategy 2021.

In April 2022, DEWA's shares started trading on the Dubai Financial Market (DFM), becoming the largest company on the exchange by market capitalisation. DEWA's IPO was the largest ever in the UAE and the largest in the Europe, Middle East and Africa region in Q1 of 2022. The broad interest from local and international investors affirms DEWA's position as a globally leading sustainable innovative corporation. We are committed to achieving investors' ambitions by involving them in a unique growth story underpinned by the ambition of Dubai and the UAE.

Looking ahead, DEWA will support the UAE's strategic growth ambitions by providing millions of residents and visitors with world-class services and innovative energy solutions. This in turn, will enrich lives while ensuring the happiness and wellbeing of all our stakeholders and shape the future of utilities.

Chapter 01

About DEWA

The Organisation and its Reporting Practices (GRI 2-1, 2-3)

About DEWA

In 2021, Dubai Electricity and Water Authority's (DEWA's) legal name was changed after it became a public joint stock company henceforth known as "DEWA PJSC" according to the new DEWA Law no 27 of 2021. DEWA PJSC is a Dubai government owned utility with around 18% of its total share capital listed on the Dubai Financial Market. Currently, DEWA headquarters is located at Sheikh Rashid Street - Umm Hurair 2 in Dubai. It also has 2 self-service Centres and 3 Future Customer Service Centres across the Emirate. DEWA's new headquarters, currently under construction is called Al-Shera'a (Arabic for sail) is located in Al Jadaf and is set to be the world's tallest, largest and smartest government building with zero carbon emissions.

DEWA is a self-governing utility regulated by the Dubai Supreme Council of Energy. The Supreme Council of Energy is in charge of Dubai's energy policy, planning, and coordination, and it has significant regulatory responsibilities, including the ability to determine DEWA's water and electricity pricing. DEWA's purpose is to provide a leading sustainable, efficient, and reliable power and water services, and related innovative smart solutions in the Emirate of Dubai. It also operates and maintains power stations, desalination plants, aquifers, electricity and water transmission lines, and power and water distribution networks. Natural gas is used to power its power stations and water desalination stations. DEWA purchases gas only from the Dubai Supply Authority (DUSUP), which is in charge of acquiring, transferring, storing, and delivering all natural gas in Dubai to end users. The share of Renewable energy has increased to reach 11.4% in Dubai's energy mix in 2021.

Sustainability Reporting at DEWA

DEWA has been issuing sustainability reports since 2013 based on the world-class GRI Standards. DEWA is a member of GRI Gold Community and part of the Standards Pioneers Programme, being one of the first 100 organisations in the world to adopt the new standards for the 2016 report onwards.

The report summarises the materially relevant economic, environmental and social facts and reflects the ways in which we are fulfilling our long–term commitments towards sustainability, enabling us to communicate our sustainability to our stakeholders and to further enhance our dialogue with them.

DEWA's annual Sustainability Report is a useful, transparent and reliable reference for all our achievements and efforts over the year to attain the goals of the UAE Centennial 2071, and the UAE Vision 2021 to make the UAE one of the best countries in the world.

The report is externally assured in accordance with the requirements of the International Federation of Accountants' (IFAC) International Standard on Assurance Engagement (ISAE) 3000 (Revised) (Assurance Engagements Other than Audits of Reviews of Historical Financial Information) and DNV's assurance methodology VeriSustain™.

The 2021 Sustainability Report covers the period starting 1 Jan 2021 to 31 Dec 2021.

Note: for any questions about the report or the reported information, you may contact sustainability@dewa.gov.ae

External Assurance Process

The term "External Assurance" refers to seeking an independent evaluation of performance data published in sustainability reporting. The external assurance process helps the organisation in improving their reporting, data management, and accountability, all of which contribute to improved sustainability performance.

The external assurance process takes around two months; the following are the steps of how external assurance is done in DEWA:

1. Approval from MD to start with External Assurance process.
2. Once MD approves, a memo with the contract department is shared to prepare a request for proposals with all the requirements.
3. Float a tender where DEWA receives all proposals from all interested companies.
4. Climate change and sustainability team (CC&S) receives all the proposals to evaluate proposal in terms of technical and financial perspective internally then, CC&S establishes a team that consists of 3 to 5 employees for the evaluation.
5. After finalising the evaluation stage, the team raises a memo for approval from the Top Management in order to start with external assurance process.
6. After the approval, the team communicates with the company / consultant to start external assurance process and propose 5 KPIs. During kick off meeting these are reviewed and agreed upon.
7. Start to communicate with technical teams from different divisions through virtual meetings to start the data check-ups and verify the data calculations and methodologies.
8. If any clarifications is required from the consultant, the team arrange for extra meetings and after that with a close meeting in order to receive the assurance statement and feedback from the consultant.

Materiality Assessment (GRI 2-2)

During 2021, the Climate Change & Sustainability department organised three virtual stakeholder engagement workshops during the month of November. The purpose of the workshops is to identify DEWA's material topics and assess the impacts to be reported for the year 2021.

Stakeholder Engagement is the core starting point for an organisation to carry out its corporate reporting cycle. DEWA has engaged with relevant stakeholders including (DEWA's Top Management, DEWA's employees, government entities, investors, suppliers, customers, society, and partners), who can be affected by the activities of DEWA or has business relationships. Overall, the stakeholder engagement sessions covered main topics such as Sustainability within DEWA, DEWA & The United Nations, Materiality Assessment, DEWA Sustainability Reporting Journey, Social Topics potentially material to DEWA & its Stakeholders, Economic Topics potentially material to DEWA & its Stakeholders, Environmental Topics potentially material to DEWA & its Stakeholders and Achievements & Awards.

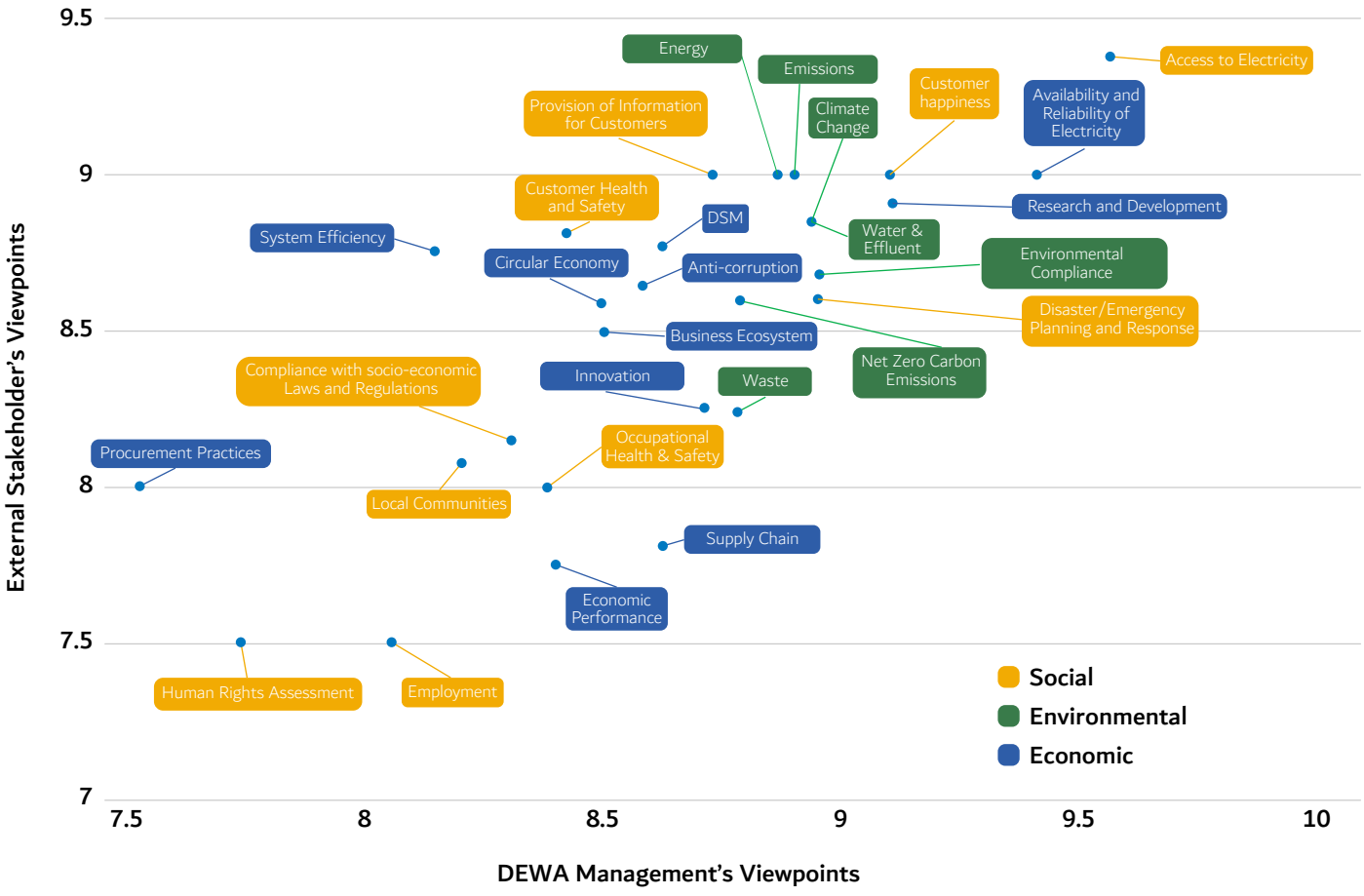
The three workshops had a total of 41 internal stakeholder participants, of which 24 are employees and 17 represent the higher management. Moreover, the external stakeholder workshop had 43 participants. Participants were invited to share their feedback on DEWA's sustainability approach and the sustainability report. Each topic was discussed, and participants were asked to rank the topics on a scale of 1-10 with 1 being

'Not Significant' and 10 being 'Very Significant' with respect to their perception of DEWA as an external stakeholder, and their importance to the organisation as an internal stakeholder.

Similarly, to last year, using the innovative online platform "Mentimeter", DEWA was able to successfully compile three materiality workshops. Mentimeter is an interactive presentation tool that allows users to engage their audiences in real time. Each topic was introduced, and open for questions and discussion.

The materiality matrix below illustrates the outcomes of the 2021 materiality assessment process. The horizontal axis depicts DEWA management's viewpoints, whereas the vertical axis depicts DEWA's stakeholders' viewpoints.

DEWA's 2021 Materiality Assessment Results



DEWA's Ecosystem

The ecosystem describes DEWA's business and interaction with the external environment of the five key components. It shows the core business starting from planning and ending with customer happiness, and how this core business supported by the other support functions to create a sustainable value for all stakeholders and collect the feedback to improve the value provided through innovation. On the other side, it demonstrates how DEWA has influence and is a leader in its ecosystem by motivating others and showcasing what can be accomplished for the benefit of others as well as DEWA.

The DEWA ecosystem is made up of five key components, which includes:

- DEWA's core business and support activities
- DEWA's stakeholders
- The global environment and mega trends
- Extended Enterprise (Subsidiaries)
- The local environment

DEWA Operations & Value Chain

Our Divisions

General Management

1. Strategy & Government Communication (S&GC): The Strategy & Government Communications division (S&GC) is primarily responsible for developing, implementing and reviewing DEWA's strategy and ensuring that risks which may affect the achievement of DEWA's strategy are proactively identified and managed. S&GC also develops internal and external communications strategies in line with DEWA's objectives and the Government of Dubai's communications strategy. This ensures the consistency of DEWA's corporate identity and maintains DEWA's brand, while communicating internally and externally through various communication channels. S&GC also spreads awareness about DEWA's role and services using the right mix of marketing and communications channels. It also supports conservation and demand-side management initiatives for electricity and water.

2. Internal Audit: DEWA's Internal Audit Department is an independent assurance function that adopts the best-in-class audit standards and practices, including the International Professional Practices Framework (IPPF) promulgated by The Institute of Internal Auditors (IIA). The Internal Audit department at DEWA operates under an approved charter and conducts reviews to add value and verify the adequacy, quality and effectiveness of internal controls, risk management and governance processes and systems of DEWA and its subsidiaries through an annually developed risk-based audit plan.

The role of the Internal Audit department as the third line of defence is to provide assurance, advice, and insight that DEWA and its subsidiaries are efficient and effective in conducting their responsibilities to be in line with and support DEWA's corporate vision, mission and objectives. The Internal Audit Department conducts regular reporting to the MD&CEO and the Audit Committee.

3. Finance: The Finance Division's responsibilities include financial planning and funding of DEWA's short-, medium- and long-term needs. It prepares capital and operational budgets, monitors disbursements, organises and controls financial and accounting operations, and calculates costs of services and processes. The Finance Division assists in studying the financial implications of projects, and provides decision-makers with accurate financial reports on a real-time basis.

4. Business Development & Excellence (BD&E): The Business Development & Excellence Division in the General Administration of DEWA implements DEWA's plans to develop green and sustainable projects to make the organisation among the most innovative and world-leading organisations in the sustainability and clean energy space. The division is divided into four main departments, first the Business Development Department, followed by Investment Management, Portfolio Management, Green Fund, the Investments affiliated to DEWA Smart Grid - Programs Management and R&D Projects. Second, the Clean Energy and Diversification Department, followed by Climate Change and Sustainability, Solar Energy, Clean Coal, Shams Dubai Project, and the Clean Energy Projects. Third, the Governance & Compliance Department, and fourth the Excellence Department at DEWA level.

5. Legal Affairs: The Legal Affairs Department assumes all legal responsibilities relating to DEWA's businesses. It represents DEWA before the competent authorities, prepares memos and provides legal advice to the higher management and its different departments on contracts and agreements. It follows up the implementation of contracts and agreement, and reviews and translates legislative documents. It also supervises the implementation of the law on the protection of the electricity grid and public water system in the Emirate of Dubai, including the collection of charges due to DEWA for the violations stipulated by the law.

Water & Civil (W&C)

The Water & Civil Division is responsible for water transmission and distribution across Dubai as per the highest standards of quality, reliability, efficiency and safety. The division's tasks include construction, development, operation, supervision and maintenance of water, pumping and storage systems using the latest versions of the Supervisory Control and Data Acquisition (SCADA), ensuring the availability of water to all customers around the clock. The division also undertakes and supervises DEWA's new constructions, in addition to providing the necessary maintenance for DEWA's civil projects.

Power & Water Planning (P&WP)

The Power & Water Planning Division is responsible for the technical planning of future expansions of electricity and water production, transmission and distribution systems through long-term detailed demand forecasts and plans. These plans are annually updated according to the world's best practices, and thus a world-class level of reliability, efficiency and safety is maintained, while ensuring resource optimisation. The division also develops initiatives to rationalise electricity and water consumption which contribute toward achieving the Dubai Demand Side Management Strategy 2030 to reduce consumption by 30% by 2030.

Generation

The Generation Division is responsible for the reliable operation and maintenance of power & desalination plants to ensure that the power & water demand of Dubai is always met safely, reliably and efficiently with the highest standards of quality and minimal impact on the environment. The Division is also responsible for project execution, commissioning and takeover of newly installed power and desalination plants.

Transmission Power (TP)

The main tasks of the Transmission Power Division are to transmit electricity from production units to power distribution networks through the construction, operation and maintenance of substations and power transmission lines. This is aligned with the highest standards of sustainability, reliability, efficiency, safety and quality, and the world's best practices.

Distribution Power (DP)

The Distribution Power Division is responsible for ensuring effective electricity connection processes all over Dubai. It executes DEWA projects and manages its assets as per the world's best practices.

Billing

The Billing Services division works on managing customer data, preparing invoices, collection, government relations, and responding to complaints and inquiries related to invoices, and it designs the content of invoices, and issues and sends them to customers.

Business Support & Human Resources (BS&HR)

BS&HR Division implements the latest technologies, international best practices, and continuous development. The division also strives to improve the level of services that it offers, in order to meet the needs of the employees, as well as to achieve their happiness by providing smart government services that are innovative, clear, transparent and available on the latest and best smart channels.

Innovation & The Future (I&TF)

The Innovation and Future division (I&TF) places innovation as its priority, and includes it as a key pillar in its projects and initiatives. It developed DEWA's IT infrastructure, and IT security and strives to join the race to the future through foresight, and by employing Fourth Industrial Revolution (4IR) technologies such as AI, unmanned aerial vehicles, energy storage, blockchain, and IoT. In addition, the division works to enhance government services to empower customers with digital and integrated services, that save time and effort and achieves customer happiness.

DEWA's Values (GRI 2-6)

DEWA's management believes that creating a cohesive work atmosphere is critical in enabling its employees to provide excellent electricity and water services. It has a set of corporate values that is well-defined. They represent DEWA as a company, its values, and its priorities.

Each value has a detailed definition, as well as key behaviours and actions, that employees can use in their everyday work. Values represent DEWA's ethics, beliefs, culture and "the way we do things around here". These corporate values are reflected in DEWA's Code of Conduct, which is distributed to all new employees in their employee handbook and is available on DEWA's internal portal.

As part of DEWA's strategic communication plan, these principles are disseminated to all stakeholders on a regular basis through training and awareness sessions, email shots, and other communication channels in both Arabic and English. Through various forms of communication and feedback, DEWA's management embodies, applies, and instills these values within the company. Employees are also urged to use the communication tools available to them.

STAKEHOLDERS' HAPPINESS

We commit to continuously exert our best efforts and dedicate the right and adequate resources to foresee, analyse, deliver, and exceed our stakeholders' needs, and expectations, to satisfy them and surpass their satisfaction towards their happiness.

SUSTAINABILITY

We commit to deliver value to our stakeholders while balancing environmental, social and economic impacts, and to act responsibly towards the long term preservation of resources for our future generations.

INNOVATION

We commit to continuously develop and seek new trends and realise our stakeholders' ideas which create new public value through an agile approach that appreciates risk and rewards principles.

EXCELLENCE

We commit to continuously be in a journey of excellence that drives continuous improvement towards implementing best-in-class efficiency and effectiveness practices delivering sustainable results to our stakeholders on all fronts.

GOOD GOVERNANCE

We commit to abide by UAE laws and preserve the highest levels of transparency, integrity, fairness, involvement, effectiveness and accountability in our dealings and value delivery to our stakeholders.

DEWA's Portfolio

DEWA has a portfolio of related business interests, despite its primary business activity of producing and supplying electricity and water:

Core Portfolio

- DEWA owns 70% of **EMPOWER**, the largest provider of district cooling services in the region. Its activities include the management, operation and maintenance of central cooling plants and related distribution networks.
- **Mai Dubai** is a water-bottling factory, fully-owned by DEWA. The company distributes bottled water within the UAE and export markets.
- **ETIHAD ESCO** was established in 2013 to mark Dubai built environment as the global leading example of energy efficiency by providing buildings with energy efficiency services. In 2020, Etihad ESCO acquired Dubai Carbon Centre of Excellence, an energy projects consultancy with a focus on renewable energy and carbon credits trading.
- **Hassyan by-Products** was established in 2020 to support DEWA's circular economy focus by trading and monetising Hassyan Energy power plant by-products.
- **Digital DEWA** was created as a holding company to group several subsidiaries that deliver digital business solutions. Six companies operate under Digital DEWA.
  - **Moro (Data Hub Integrated Solutions)**: Wholly-owned subsidiary of DEWA that was formed to provide Data Centre space, Cloud solutions, Managed Business Solutions and Managed IT services for DEWA and for external public and private entities.

- **Digital X**: Created in 2020, it aims to enhance the digital experience of Dubai residents and businesses by introducing new digital solutions, services and products, manpower services, software development, testing, quality control and R&D services.
- **Infra X**: Created in 2020 it aims to utilise DEWA's telecommunications infrastructure to provide a range of smart services, telecommunications and reliable connectivity services from its Data Centres and Cloud Services to its customers.
- **Smart Energy X**: Established in 2021 to provide services related to electric vehicle charging infrastructure, electronic parking management solutions, grid scale storage systems installation & maintenance, electric cars trading, electromechanical equipment Installation, repair and maintenance.
- **Secure X**: Established in 2021 to provide services related to computer systems housing services, computer systems & communication equipment software design, data classification & analysis services, IT infrastructure and network services.
- **SpaceD**: Launched in 2021 to support the National Space Strategy 2030, Space-D aims to build DEWA's capabilities and train Emirati professionals to use space technologies to enhance DEWA's electricity and water networks by taking advantage of the Fourth Industrial Revolution technologies such as IoT, AI, and blockchain to exchange information with the help of satellite communications and earth observation technologies.

IPP Portfolio

- **Shuaa Energy 1** was established in 2015 to complete the 200MW 2nd phase of the Mohammed bin Rashid Al Maktoum Solar Park. DEWA owns 51% through Jumeirah Energy International and ACWA Power Solar Limited owns 49%.
- **Shuaa Energy 2** is the 800MW solar power plant established in 2016 to complete the 3rd phase of the Solar Park with 60% belonging to DEWA through Shuaa Energy 2 Holdings and 40% to Emirates Solar Power Company.
- **Shuaa Energy 3** is a 900MW solar power plant established in 2020. 60% belongs to DEWA through Shuaa Energy 3 Holding and 40% to Solar V Holding Company.
- **Noor Energy 1** is the largest single-site CSP plant in the world. Established in 2018, it will have a capacity of 950MW. It is owned by Noor Energy 1 Holdings, of which with DEWA owns 51% and ACWA Power Solar CSP Holding Limited owns 49%.
- **Hassyan Energy Phase 1** has started operations and has a current net capacity of 1200 MW. DEWA expects it will have a net capacity of 2,400 MW by 2023. While the plant was designed to be operated on dual fuel, DEWA, as off-taker, took the decision that the plant should operate using only natural gas as the primary fuel, and the formal shift was publicly announced by the Company. In addition, the Hassyan Power Plant uses ultra-supercritical technology in its operations, in compliance with set international standards.
  - The Hassyan Energy 1 DEWA HoldCo, which has a 51% ownership interest in Hassyan Energy Phase 1 PSC, is wholly owned by JEI Holding, which in turn is wholly owned by the Company
- **Hassyan Water Company 1** is a 120 Million Imperial Gallons per Day reverse osmosis water plant established in 2021. The plant is due to be completed by 2024 and is 60% owned by DEWA and the remaining 40% is owned by Utico.

Financial Companies Portfolio

- **Dubai Green Fund Investments** is 100% owned by DEWA through Jumeirah Energy International Capital Holdings and was established in 2018 to invest in green projects in Dubai to make the Emirate a global hub for the green economy.
- **Dubai Green Fund Capital (DGFC)** is 100% owned by DEWA through Dubai Green Fund Investments and was established in 2020. The core objective of DGF Capital is to launch and manage funds which will make investments in the green and sustainability sectors along with providing advisory and arranging services in the same sectors.
- **Forward Investments** is the corporate venture capital arm of DEWA. It focuses on investments in emerging technologies and new business models that can benefit DEWA and Dubai in the long run.
- **Jumeirah Energy International Silicon Valley Company** is DEWA's outpost office in Silicon Valley owned 100% by Jumeirah Energy International Capital Holdings, DEWA's wholly-owned investment arm. Its primary goal is to look for investment opportunities related to R&D and innovation.

The above related business interests are excluded from the reported data found within this report.

Financial Performance (GRI 201-1)

The financial performance of DEWA indicates its alignment with and commitment to the long-term sustainability goals of the UAE Vision 2071 as well as the 5-year charter. The continuous efforts on optimising costs and investments have proven results by way of generating consistent returns to its sole shareholder, the Government of Dubai.

As a responsible member taking guidance from Dubai Supreme Council of Energy, DEWA recommended and reduced fuel surcharge by 23% for electricity and 33% for water from 1st of December 2020.

Under the leadership of the MD&CEO, DEWA as an industry leader, has achieved its financial KPIs and created equilibrium between financial performance and customer happiness, thus creating sustainable value for stakeholders and customers.

Beyond the boundaries, DEWA is creating new challenging standards on efficiency and optimisation. DEWA is continuously investing in diverse new opportunities to achieve its overall vision in the areas of clean energy, digital transformation, water etc. with strategic alliance partners to make a greener planet.

Key Facts About DEWA

01 11,300 Employees

02 1,061,476 Electricity Customers Accounts

03 490 Million Imperial Gallons per Day (MIGD) Water Production Capacity

04 960,032 Water Customers Accounts

05 13,417 Megawatt (MW) Generation Capacity

06 44.7 Terawatt Hour Units Sold – Electricity

07 118,411 Million Imperial Gallons – Unit Sold – Water

08 21,745 Million AED – Total Revenues

09 32 Total Provided Services (Main and Public)

DEWA Services

DEWA is one of the best utilities in the world, delivering world-class electricity and water services to over 1,106,412 customers in Dubai, according to the highest levels of quality, efficiency, and availability. It had 1,061,476 electricity accounts by the end of 2021 compared to 752,505 accounts by the end of 2016; an increase of 41%. The number of water accounts reached 960,032 accounts by the end of 2021 compared to 666,006 accounts by the end of 2016; an increase of 44%. The total number of electricity and water accounts reached 2,021,508 accounts by the end of 2021.

Number of Customers Accounts as of 31 December 2021 (EU3)

	Electricity		Water	
Description	No. of Customer accounts	Percentage	No. of Customer accounts	Percentage
UAE National	70,040	6.60%	65,608	6.83%
Expatriates	761,525	71.74%	747,695	77.88%
Commercial	213,892	20.15%	142,216	14.81%
Govt. Org.	6,742	0.64%	2,067	0.22%
Industrial	3,035	0.29%	1,543	0.16%
Exempted	1,239	0.12%	479	0.05%
EV	5,003	0.47%	-	-
Port Sales	-	-	424	0.04%
Total	1,061,476	100%	960,032	100%

DEWA Provides 26 Public Services to Its Customers Under 6 Main Services. The Following are DEWA's 6 Main Services:

1. Electricity & Water Management Services
2. Billing Services
3. Sustainability & Consumption Management Services
4. NOC Services
5. Electricity Network Services
6. Water Network Services

For more information about consumer services, visit the following link:

https://www.dewa.gov.ae/en/about-us/service-guide/consumer-services

Supply Chain (GRI 2-25, 204-1)

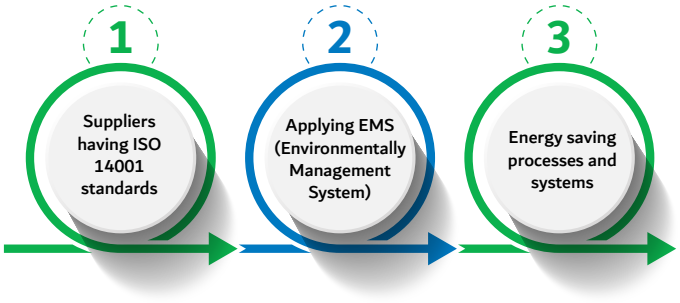
DEWA recognises that its entire environmental and social impact is greater than its direct operations. As a result, it continues to procure plants and systems that have a low environmental impact while also being more efficient. On DEWA's supplier portal and for the last three years DEWA engaged with 4,562 suppliers. During 2021, it worked with 1,749 suppliers, of which 29 are strategic suppliers, 213 core suppliers and 1,507 basic suppliers. DEWA collaborates with local and global businesses in its operations and supply chain to help boost the local economy and contribute to transforming Dubai into the smartest and happiest city in the world.

During 2021, DEWA conducted 11,848 local transactions through Local Purchase , equivalent to approximately AED 417.72 million which is 100% of the total spending of Local Purchase department and 1334 transactions with local vendors for bulk purchase through Contracts Department with order value of AED 3,552.006 million, which is 77.33% total spending of Contracts Department.

The total amount spent locally was AED 3,969.726 million. DEWA defines local companies as those that are physically situated in the UAE and have a valid trade license. DEWA has categorised its suppliers into 191 categories based on products and services to carry out its activities.

DEWA has a Green Procurement programme across its entire supply chain. The programme evaluates the environmental effects of products acquired at various phases of their lifecycles in order to avoid purchasing products that have negative environmental consequences. To avoid, mitigate, or transfer procurement-related risks, well-defined methods and commercial terms and conditions are in place. DEWA created a Supply Chain Risk Management Framework in accordance with ISO31000 to reduce vulnerability and maintain the continuation of its important suppliers. The framework identifies and analyses unusual risks along the supply chain based on ongoing risk assessment.

Green suppliers are chosen based on their ecologically friendly products and energy-saving ideas, as well as an internal procedure that considers the following criteria:



DEWA has set an annual KPI to monitor its procurement from green suppliers. The KPI represents the percentage of green suppliers out of the total Strategic Suppliers. In 2021, DEWA met its target of 10%.

Soqoor Programme

In 2021, DEWA launched Soqoor programme as the first of its kind to assess and recognise consultants and contractors in terms of their performance; and compliance with requirements, standards, guidelines, terms and conditions during the service application submissions and site operations for their projects. The Soqoor Programme ensures contractors and consultants working in infrastructure, distribution and transmission of electricity and water in Dubai adhere to the highest international standards of quality, safety and excellence, as per DEWA's standards and guides.

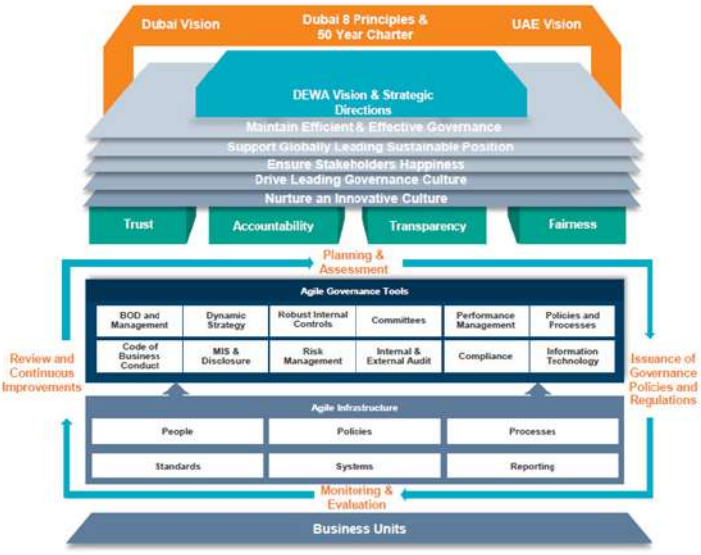
The Programme includes awareness workshops for contractors and consultants to provide further clarification on the guidelines and requirements to receive the best performance. It also helps them get approval on the first application, reduce resubmissions, and decrease or avoid prohibited acts, violations, damages, and fines. This helps consultants and contractors to save time and effort and protects DEWA's assets and services.

Governance (GRI 2-9, 2-10, 2-11, 2-12, 2-13, 2-14, 2-27)

DEWA has suitably adapted and implemented the best principles of Corporate Governance for State Owned (COSO) Enterprises in line with the recommendations of the Organisation for Economic Co-operation and Development Guidelines 2015. The guidelines of the World Bank and best practices of electricity and water providers worldwide have also been used for guidance. A comprehensive Governance Framework, Governance Policy and Governance Charter have been developed and implemented in line with its establishment decree No.1 of 1992. It defines the distribution of roles and responsibilities among the different stakeholders, including the leadership, ensuring no conflict of interests or any misuse of authority.

DEWA has adopted four pillars of good governance; Trust, Transparency, Accountability, and Fairness. These pillars are embedded within DEWA's Good Governance Framework.

Governance Framework



The Good Governance Framework and the strategic directions of the government of Dubai and the UAE, are cascaded into the goals of DEWA's good governance practices, and underlined by DEWA's good governance principles. The tools and infrastructure requirements support the governance processes of the organisation and are further cascaded to business units. These make up the controls and enablers to ensure that objectives are achieved with integrity and reliability.

DEWA follows the COSO Framework for internal controls and periodically conducts its reviews of the effectiveness of its internal controls. The 17 Principles of COSO Internal Control are applied across all DEWA's divisions, departments, and operations and are constantly scanned for compliance. The COSO synchronised control systems, such as the delegation of financial and administrative authorities, have been an outstanding example of DEWA's leading internal controls. Loss reduction, fraud prevention, and managerial effectiveness have been hallmarks of DEWA's implementation of the COSO 17 principles.

DEWA follows the Three-Line Model, with corporate divisions/departments being the First Line, Governance & Compliance and Risk Management departments being the Second Line, and internal audit being the Third Line for independent assurance. The 5 Lines of Assurance model related to internal control, internal audit, compliance, external audit and risk management has also been incorporated in DEWA's structure. The four control support functions namely Governance & Compliance, Internal and External Audit, Legal Department, and Risk Management provide the control framework. The Finance Department ensures financial control across the organisation and provides accounting in line with International Financial Reporting Standards (IFRS), and as per DEWA's Disclosure Policy, publishes the audited financial results and statements. The entire control processes are supported ably by the SAP Enterprise System, which is an internationally recognised enterprise software platform that optimises efficiency with controls.

Board of Directors

The Board of Directors of DEWA is appointed by the Government of Dubai, the 100% shareholder. The Board and the Managing Director and CEO were appointed through decree no. (27) of 2021

issued by the Ruler of Dubai for an initial extendable term of three years. The Board along with the Managing Director and CEO set the tone at the top for the organisation, with ethics as a key driver. The Board and Management lead governance best practice by example.

The eleven members of the Board are chosen after a thorough and proper evaluation process. The members are qualified and experienced in engineering, technology, accounting and finance, administration, management and business. They all have extensive experience as members of boards of organisations and companies. They oversee the organisation and its operations.

DEWA operates based on the proclamation and resolution of conflicts of interests, clear related party disclosures and its established Code of Conduct. The Board follows best practices in board governance principles. HE Matar Humaid Al Tayer currently serves as Chairman of the Board, while HE Saeed Mohammed Al Tayer is DEWA's Managing Director (MD) & Chief Executive Officer (CEO) and a Member of the Board.

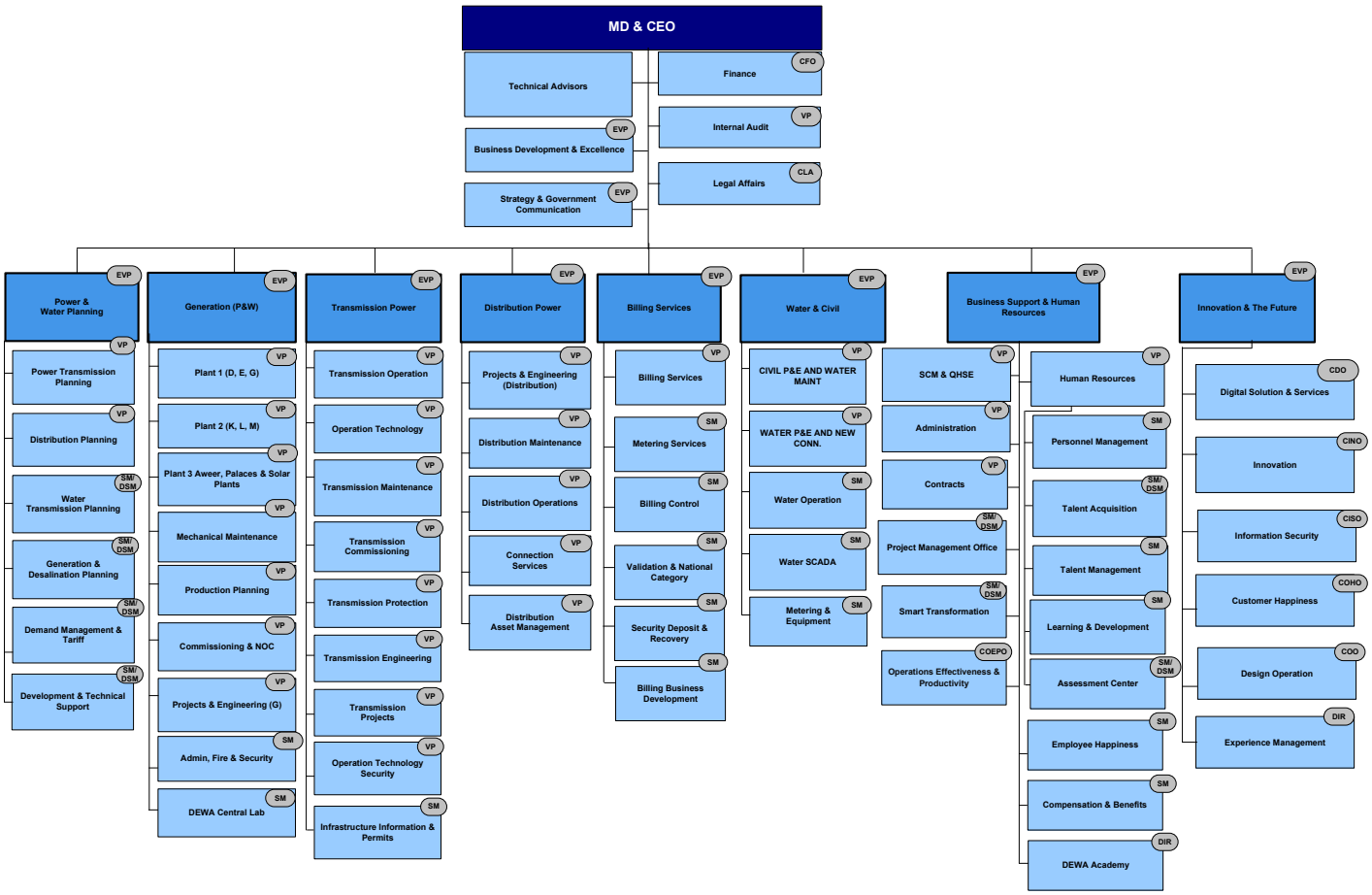
The MD&CEO is responsible to manage the organisation's impact on the economy, environment, its employees and other stakeholders. The Board meets on a quarterly basis, or more frequently as needed, where they receive updates directly from the MD&CEO and the heads of divisions at DEWA. The Board is updated on DEWA's main and strategic projects, including but not limited to, its financial and sustainability performance. Updates to DEWA's strategy, purpose, values, mission and policies relating to sustainable development are proposed by the Strategy department in consultation with the Divisional Heads and then approved by the MD & CEO.

- **HE Matar Humaid Al Tayer – Chairman and Independent Board Member**
- **HE Saeed Mohammed Ahmad Al Tayer – Non-Independent Board Member, MD&CEO**
- **Mr. Hilal Khalfan Bin Dhaher – Independent Board Member**
- **Mr. Abdulla Mohamed AlHashemi – Independent Board Member**
- **Mr. Khalfan Ahmad Bin Harib – Independent Board Member**
- **Mr. Majid Hamad Rahmah AlShamsi – Independent Board Member**
- **Mr. Obaid Saeed Bin Mes'har – Independent Board Member**
- **Mr. Saeed Mohmmad AlShared – Independent Board Member**
- **Mr. Nabil Abdulrahman Ahmad Arif – Independent Board Member**
- **Mr. Mohammad Juma AlSuwaidi – Independent Board Member**
- **Dr. Moza Shaiban Suwaidan Alreeh – Independent Board Member**

Organisation Chart

DEWA is organised into primary and secondary specialised divisions, with each sector having its own set of specialised departments, sections, and units in charge of managing the sector's activities in accordance with key performance indicators, targets, and plans. Together, they help DEWA provide professional and effective service delivery.

Below is the organisation chart of DEWA:



Committees

The Management team is assisted in its work by a number of additional committees, which are made up of members of the management team or other DEWA division representatives. These include the Grievance Committee; Women's Committee; DEWA Youth Council; Investment Committee; Takaful and Theqa Committee; Administration Violation Committee; Scrap Verification Committee; DEWA Excellence Award Committee; Crisis Management Committee; Group Risk and Resilience Committee; Health, Safety & Environment Committee; Corporate Governance Committee; IT Security Response Team, Drones Robotics Committee, ISO 50001 Energy Management System-Top Management Committee, and Cyber Emergency Response Committee.

Agility Activities in DEWA

DEWA's agility has played a major role in enabling DEWA to foresee changes and adapt swiftly to the changing environment, in addition to responding to an emerging opportunity or challenge within its ecosystem in a timely way.

Definition

DEWA has its own definition of Enterprise Agility which is the ability to foresee change and adapt swiftly to the changing environment.

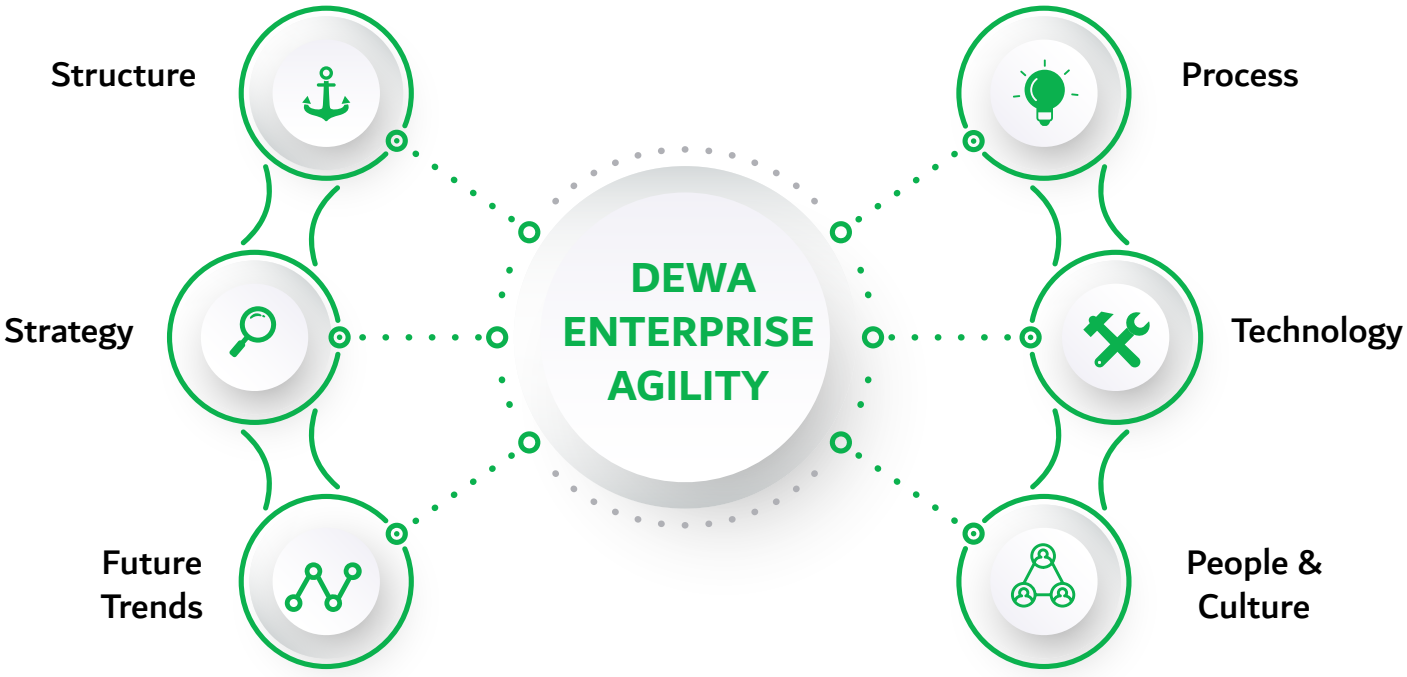
The Key Drivers

- **Agile visionary leadership**
- **Harnessing agile culture across DEWA**
- **Empowered employees**
- **Dynamic strategy**

Framework

DEWA's Agility Framework is built on 6 pillars: Future Trends, Strategy, Structure, Processes, Technology, People & Culture.

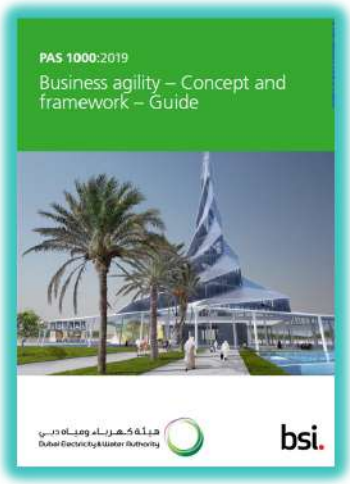
This framework enables DEWA to update the strategy swiftly based on the future trends and reflect that on the execution level using agile ways of working while at the same time working on an agile culture and empowering the people, and all of this is supported by a very strong technology infrastructure.



1. Building an Agile Culture: Many activities are taking place on different levels to build an agile culture in DEWA along with agile ways of working, with awareness sessions, workshops, hackathons and communities.

2. Global Agility Related Achievements:

- Agile Global Good Governance Summit: The aim of the Summit was to reflect on lessons learned for organisations from the pandemic response. This summit had more than 1,500 attendees form all around the world.
- Agility in Governmental Management: 1st Enterprise Agility Book in UAE under DEWA's sponsorship, in collaboration with Mohammad Bin Rashid School of Government
- PAS 1000:2019 Business Agility – Concept and Framework – Guide: DEWA and the British Standards Institution (BSI) have launched the 1st Business Agility – Concept and framework – Guide (PAS 1000:2019)



Strategy, Policies, & Practices (GRI 2-23, 2-24)

Strategies

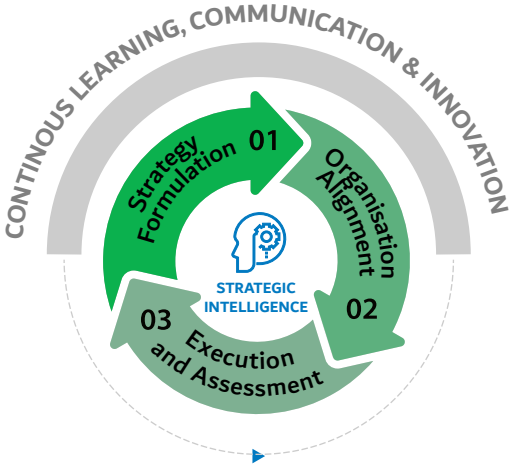
Strategically Driven

The UAE and the Dubai government are continuing to establish policies and aims to secure the UAE's long-term development. DEWA's strategy is constantly aligned with important worldwide events and trends, as well as national strategies, to ensure its successful contribution to Dubai's and the UAE's long-term growth. DEWA's Strategy and Strategic Intelligence Framework helps to achieve this. DEWA's Strategic Intelligence Framework is a systematic continuous past-forward, today-onward, and future-back assessments that feed strategic intelligence into the organisation by using an existing insights ecosystem that supports the strategy on each phase through innovation.

The Strategy Framework is Divided Into Three Phases:

1. The **Strategy Formulation** process at DEWA include identifying the strategic direction and then constructing the corporate strategy using strategic insights
2. The focus of **Organisational Alignment** is on aligning divisions with the overall strategy and developing strategic initiatives to achieve it
3. The **Execution and Assessment** focuses on putting the strategy into action and analysing progress in order to track business performance versus specified goals and targets

DEWA's Strategic Intelligence Framework Include the Following:



The Strategic Intelligence Framework of DEWA is Built on Five Major Pillars:

(a) Insights Ecosystem

Network of think tanks, academic institutions, government entities that DEWA would collaborate with to gather relevant insights to incorporate in its strategy process.

(b) Benchmarking

Process of comparing one's processes , performance metrics, strategies to best in class or world class.

(c) Internal Analysis

Process to analyse the internal capabilities and processes in order to identify the strength, weaknesses and analyse the external threats and opportunities that are affecting the organisation business.

(d) Horizon Scanning

Process to continuously scan for signals in DEWA's external environment to capture relevant signals (and avoid blind spots) that could significantly affect future business of DEWA.

(e) Scenario Planning

Process to incorporate future oriented long term thinking into DEWA strategy to process by incorporating a disciplined method for imagining possible futures scenarios and using them to either pressure test existing strategies or design new strategy.

DEWA Strategy Alignment

DEWA's strategy is in line with global, UAE, and Dubai level directives.

United Nations Sustainable Development Goals

The Sustainable Development Goals (SDGs) came into effect in January 2016 and are a universal call to action to end poverty, protect the planet, and ensure that all people enjoy peace and prosperity. Each of the 17 Goals has specific targets to be achieved over the next 15 years.

10 Principles of the United Nations Global Compact

The United Nations Global Compact is the world's largest corporate sustainability initiative with more than 13,000 corporate participants in over 170 countries. The Global Compact is based on ten fundamental principles relating to human rights, labour, environment and anticorruption.

Circular Economy Policy 2021-2031

A comprehensive framework for determining the country's approach to achieving sustainable governance and the ideal use of natural resources.

UAE and Dubai Innovation Strategy

The Dubai Innovation Strategy focuses on ten sectors that are aligned to the National Innovation Strategy and aims to improve living standards in Dubai. For DEWA, innovation is a priority for improving its services and initiatives, and a key element in developing its strategies and work plans.

The UAE Strategy for the Fourth Industrial Revolution

This strategy aims to achieve customer happiness and to position the UAE as a model for interactive cities using AI, innovative education, intelligent genomic medicine and robotic healthcare to achieve sustainability.

The UAE National Space Strategy 2030

The National Space Strategy 2030 aims to enhance the space sector's contribution to the national economy and promote the UAE's regional and international presence in the space sector.

UAE Water Security Strategy 2036

The aim of the UAE Water Security Strategy 2036 is to sustain access to water under both regular and emergency conditions in keeping with national regulations and international standards set by the World Health Organisation. Some of the main targets for the strategy include: reducing the demand for water by 21%, increasing the reuse of treated water to 95% and increasing the national water storage capacity up to two days.

UAE Centennial 2071

The plan focuses on human development through educational programmes with a concentration on Information Technology and Engineering, promoting the UAE's image and soft power globally, enhancing community cohesion and respect while strengthening Emirati values and ethics and lastly, building a diversified and competitive economy.

Dubai 10X

His Highness Sheikh Mohammed bin Rashid Al Maktoum, called on all Dubai Government entities to embrace disruptive innovation, which is exploiting available technologies to deliver new or existing services in radically different ways that are design thinking based and customer-focused. The disruptive innovation should be adopted by all government entities as the basis of their operations and to seek ways to incorporate its methodologies in all aspects of their work.

Dubai Urban Plan 2040

Dubai 2040 Urban Master Plan maps out a comprehensive plan for a sustainable urban development in Dubai. It focuses on enhancing people's happiness and quality of life and reinforcing Dubai as a global destination for citizens, residents and visitors over the next 20 years.

8 Principles of Dubai

The 8 defining Principles of Governance for Dubai, endorsed by His Highness Sheikh Mohammed bin Rashid Al Maktoum, show the well-being of the UAE's people, the sustained progress of the nation, and the welfare of future generations. The Principles lay a strong foundation for the UAE's future growth, economic conditions, business, law and more.

UAE Strategy for Artificial Intelligence

Launched in October 2017, this strategy is the first of its kind in the world. It aims to achieve the objectives of the UAE Centennial 2071; boost government performance at all levels; use an integrated smart digital system that can overcome challenges and provide quick, efficient solutions; make the UAE the first in the field of AI investments in various sectors; and create a new vital market with high economic value.

Dubai Clean Energy Strategy & Demand Side Management Strategy

The Dubai Clean Energy Strategy 2050 sets targets for 7% of clean energy in the generation mix by 2020, 25% by 2030 and 100% by 2050, while the Demand Side Management Strategy (DSM) 2030 aims to reduce energy and water demand by 30% by 2030. DEWA plays an essential role in achieving these goals by reinforcing the renewable energy sector and fuel diversification to meet the objectives of the Dubai Clean Energy Strategy 2050, which maps out Dubai's energy sector over the next three decades. The Dubai Clean Energy Strategy 2050 and the Dubai Net Zero Carbon Emissions Strategy aims to obtain 100% of Dubai's total power capacity from clean energy sources by 2050.

50-Year Charter

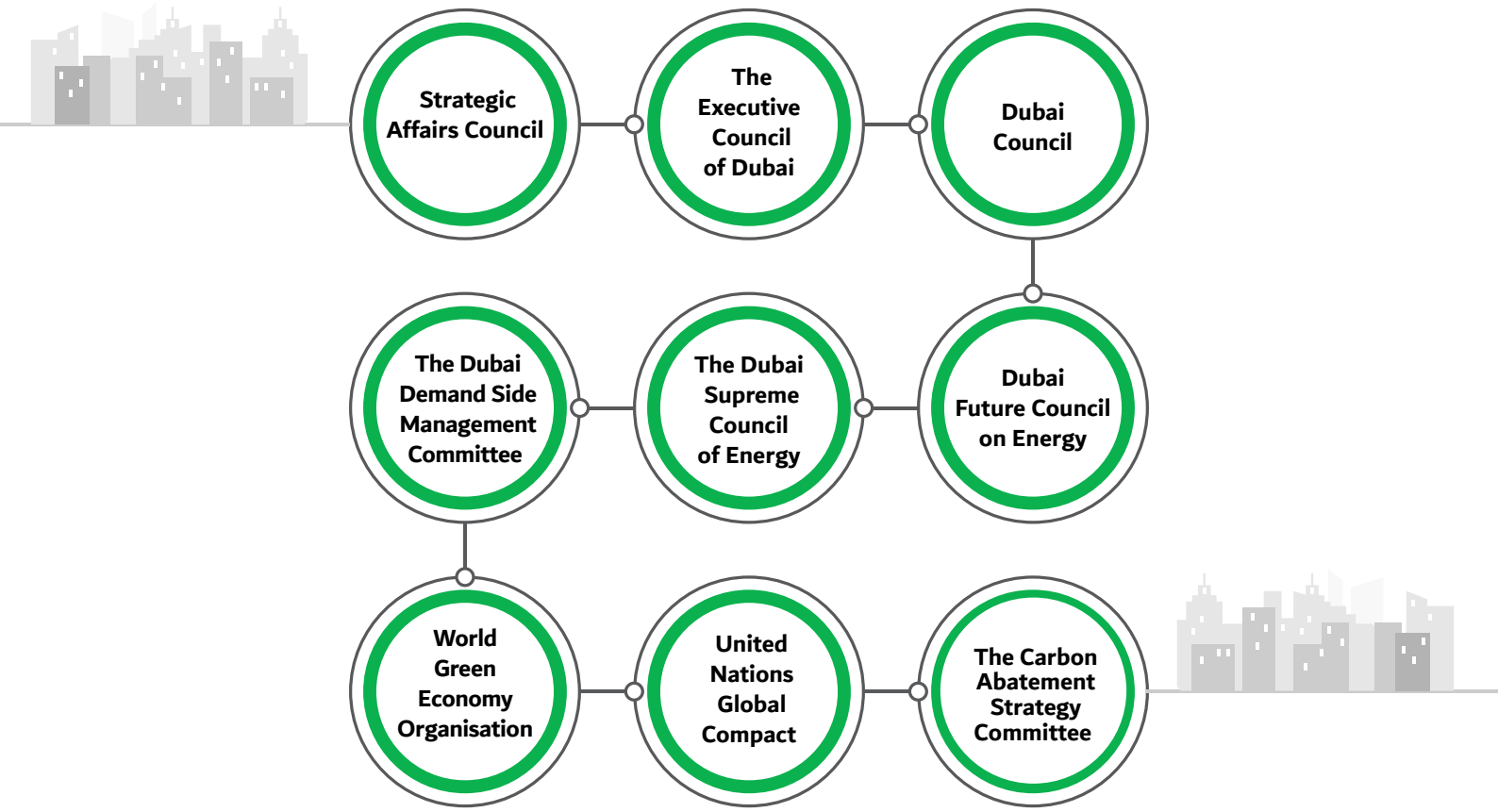
The Charter marks His Highness Sheikh Mohammed bin Rashid Al Maktoum 50 years of service to the country and outlines plans to improve the quality of life in Dubai for its citizens and residents over the next 50 years. The Charter represents the pledge and promise to enhance the lives of people in Dubai in 2019. It includes what will be undertaken to improve the quality of life, develop the community of Dubai and ensure a brighter future for generations to come.

Dubai 3D Printing Strategy

Dubai 3D printing strategy aims to exploit technology for the service of humanity and promote the status of the UAE and Dubai as a leading hub of 3D printing technology by the year 2030. Dubai's key goal is to ensure that 25% of buildings in Dubai are based on 3D printing.

Membership Associations (GRI 2-28)

DEWA is active in a number of national and international organisations, councils, and committees. These include, but are not limited to, the following organisations:



Policies

Security Operation Management System (SOMS) Policy

DEWA is committed to provide a safe, practical, and risk-free work environment for all of its employees, contractors and affiliates through the effective implementation of the security policy, procedures, contracts and plans. The purpose of this policy is to administer the operational security management system within DEWA. The SOMS is the main driver for implementing and improving DEWA's operational security management system across its sites through the Corporate Security Department of the Business Support and Human Resources Division, and it includes all sectors, departments and sections across DEWA.

SOMS Objectives at DEWA:

1. Treat all persons with dignity according to the human rights with compliance to UAE Laws and DEWA's policies and regulations when implementing the Security Management System, DEWA Corporate Social Responsibility Policy as well as DEWA's rules of conduct and work ethics.

2. Provide physical security, outsourcing security management and services, implements Security Risk Assessment, mitigation and prevention based on Enterprise Risk Management framework, surveillance camera monitoring and observation, incident management and related security activities and functions.

3. Ensuring compliance with the requirements of International Standard for Security Operations Management System ISO18788:2015 / BS10800:2020 Provisions of Security Services/ BS7958:2015 Closed Circuit Television CCTV Management & Operation Code of Practice by adhering to the following:

A) Respect Human Life and dignity as first priority

B) Avoid, prevent and reduce the likelihood and consequences of disruptive and undesirable events.

C) Comply with UAE applicable legal requirements and other requirements

D) Respect human rights in compliance with applicable UAE laws and DEWA's approved policies and regulations

E) Continual Improvement

4. Provide enough resources and training when required to ensure security and risk management excellence whilst promoting awareness and responsibility

https://www.dewa.gov.ae/en/about-us/strategy-excellence/policies

Integrated Management Systems Policy

DEWA's Management is committed to effective implementation of Quality, Occupational Health, Safety, and Environment; (QHSE) Management Systems (ISO 9001, ISO 45001, and ISO 14001) within its business, in order to attain its purposes, by providing globally leading sustainable, efficient and reliable power and water services, utilising state of the art innovative smart solutions. DEWA considers QHSE Management Systems as fundamental to its creativity, innovation, continuous improvement process and sustainability.

https://www.dewa.gov.ae/en/about-us/strategy-excellence/policies

DEWA Social Responsibility & Volunteering Policy

DEWA launches and implements social and volunteer work projects as well as supports sustainable development initiatives. DEWA works with all its stakeholders within an integrated organisational system and contributes to achieving the vision of wise leadership to support the sustainable development of Dubai and the UAE in terms of society, the environment, and the economy. The Society Happiness Department of the Strategy and Government Communication division (S&GC) is the sole owner of this policy. It aims to ensure the integration and coordination of Corporate Social Responsibility (CSR) and volunteer work by all DEWA's divisions. This promotes DEWA's positive reputation and corporate brand image.

https://www.dewa.gov.ae/en/about-us/strategy-excellence/policies

Practices (GRI 2-26)

Grievances & Complaint Process

DEWA has a system in place to address any concerns for its employees and stakeholders in a constructive and fair manner. It has its own processes for Grievances & Complaints.

Employee Complaint Process

DEWA's employees can raise their complaints through a grievance form that goes directly to HR or even to the top management.

The following is the grievances process within DEWA:

- Employee submits a grievance either to HR directly or through email or to his/her direct manager, EVP or to the MD&CEO office.
- HR receives the grievance form.
- HR forwards the received form (grievance) to the employee's divisional Head to provide his/her comments and/or justification.
- Divisional Head forwards his/her comments and/or justification to HR.
- HR obtain approval from the MD&CEO to refer the grievance request to the Grievance & Complaint Committee for study.
- The Grievance & Complaint Committee studies the submitted grievance request along with the Divisional Head's comments.
- The Grievance & Complaint Committee prepares their recommendation and forwards it to the MD & CEO for approval.
- The employee is notified officially with the Grievance & Complaint Committee's recommendation.

The following is the complaint process within DEWA:

- Employee submits his/her compliant either to HR directly or through email or to the MD&CEO's office
- HR receives the complaint form.
- HR forward the received form (complaint) to the employee's Divisional Head to investigate and try to solve it. If the complaint is solved by the Divisional Head, HR is notified & the case is closed.
- If the complaint is not closed at the level of the Divisional Head, the Divisional Head forwards the investigation report to HR for further action.
- HR obtains the MD&CEO's approval to refer the complaint request to the Administrative violation committee for investigation.
- The administrative violation committee investigates the complaint.
- The recommendation of the Administrative violation committee is then forwarded to the MD & CEO for approval.
- The employee is notified officially with the Administrative violation committee's recommendation.

Customers Complaint Process

The Unified eComplain System is a portal for receiving customer complaints. This system is designed by Digital Dubai in coordination with The Executive Council and through it DEWA records all customer complaints. The Customer Happiness Department manages this system and accordingly has a list of coordinators from all Divisions/Department to investigate their related complaints, wherein all coordinators have signed confidentiality agreements before accessing and using the system.

Upon receiving the complaint, the Customer Feedback Section from Customer Happiness Department filters the case and assigns it to the concerned department for their further investigation. An escalation matrix is in place to ensure that senior management from both divisions are involved and in the loop; in order resolving the cases within the target time as well and elevate the customer happiness level. The cases are assigned through the system and within 3 working days, the coordinators must resolve it. Complainants have the right to express their dissatisfaction with the outcome of the resolutions received. All divisions have a grievance owner to investigate and provide a final resolution on the assigned complaint. The same is clearly communicated to customers through Know Your Right document that is sent as soon as complaints are received.

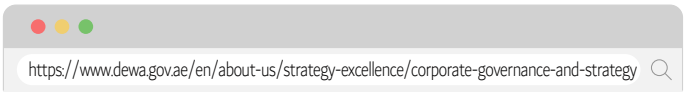
Customers satisfaction level is measured on quarterly basis through Business Intelligence (BI) portal that is integrated with the Unified eComplain System. As per the BI report, in 2021 DEWA managed to achieve 96.9% complaint satisfaction; while the target is 80%. In addition, in 2021 the ratio of grievance achieved was 6.5% compared to a target of 10%. Please refer to the below table:

KPIs	Target 2021	Actual 2021
% of resolving complaints within (0-3) working days (DEWA's internal KPI)	98%	99%
% of resolving complaints within (0-7) working days (DEWA's internal KPI)	100%	100%
% of resolving complaints within (0-7) working days (DEWA's external KPI -TEC)	75%	100%
% of Complaints Satisfaction (DEWA's external KPI BI)	80%	96.9%
% Ratio of Grievance (DEWA's external KPI BI)	10%	6.40%

Anti-Bribery

DEWA recognises that the prevention of fraud, bribery and corruption is an integral component of good governance and affirms its commitment to conduct its business and operations in an honest and ethical manner. DEWA ensures transparency and integrity in all its business dealings and relationships wherever it operates and will implement and enforce effective systems and procedures to ensure prevention, detection and action against fraud, bribery and corruption.

All employees of DEWA are responsible for prevention and reporting of any fraud, bribery and corruption and all stakeholders (including but not limited to customers, partners, suppliers, and contractors, and temporary staff) and organisations with which DEWA conducts any business, are expected to abide by DEWA's policy and procedures for prevention of fraud, bribery and corruption.



Whistleblowing

DEWA adopts a whistleblowing process managed by the Internal Audit Department. The whistleblowing process facilitates the mechanism for reporting or raising concerns by an employee, stakeholder, or third party about unlawful act or misconduct, within or in connection with DEWA activities including but not limited to fraudulent financial activities, illegal or unethical conduct that affect stakeholders internal and external. Whistleblowing is treated in complete confidentiality and protection for the person reporting who may choose to be anonymous for their protection. The Internal Audit Department conducts the required investigation and due diligence to ensure all risks to DEWA and its stakeholders are mitigated, and corrective actions are taken.

The whistleblowing channels are:

- The Smart Office Application, which offers the option of "Anonymous Reporting"
- DEWA Ethics Email: ethicshotline@dewa.gov.ae
- DEWA Ethics Hotline: 04-3222202

Corporate Risk & Resilience (GRI 103-1, 103-2, 103-3)

DEWA recognises the need to build its adaptive capacity to resist, respond to and recover from an increasing array of foreseeable and unexpected dynamic and disruptive challenges and in doing so, ensuring that power and water demands across Dubai are met at a globally leading level of reliability, efficiency, and safety with minimal environmental impact. This requires an enhanced capability to build and sustain resilience in response to potential risks, incidents, and crisis situations.

The Corporate Risk & Resilience Department implemented its Corporate Risk & Resilience Policy and Framework to embed long-term resilience across the organisation in order for DEWA to become and remain a resilient utility for generations to come. The approach is aligned to local (AE/SCNS/NCEMA 7000:2015) and international (ISO 22301, ISO 31000, and BS 11200) standards and best practices.

DEWA has placed itself in the driving seat when it comes to pioneering leading risk and resilience standardisation following the development and launch of PAS 60518:2020 - Enterprise Risk & Resilience Management in Utilities Guide. Since its launch in August 2020, DEWA's focus has been driving the implementation of this dedicated risk and resilience standard.

Enterprise Risk Management (ERM)

DEWA applies an Enterprise Risk Management (ERM) Framework consistent with ISO 31000: 2018 - Risk Management Guidelines to ensure that risks throughout the organisation are managed consistently. The Framework defines the management policies, procedures, and practices to be applied to the risk management tasks of identifying, analysing, evaluating, treating, and continuing to monitor risk. Regular monitoring, review and reporting of risks is an important component of DEWA's ERM Framework, as it ensures new risks and changes to existing risks are identified and managed, and that risk treatment plans are developed and implemented.

DEWA may encounter a wide variety of risks which are identified using a top-down (corporate) and bottom-up (divisional) approach to ensure the full spectrum of risks to DEWA's business are identified and, where required mitigated to an acceptable level as articulated in the Enterprise Risk Management (ERM) Framework and approved by the Group Risk & Resilience Committee (GRRC); who continuously identify and mitigate new and emerging risks to ensure the strategic priorities of the organisation are not compromised in any way.

Crisis and Business Continuity Management

To further enhance the overall resiliency level across the organisation, DEWA Divisions are responsible for the development and maintenance of their respective Business Continuity Plans (BCP) which are reviewed, tested, and updated annually or more frequently if required. During the testing phase, areas for improvement are identified and prioritised with support from the Corporate Risk & Resilience Department.

For externally facing risks and scenarios, DEWA has developed joint response plans with its strategic partners to ensure collaborative response and critical communication interchange during emergencies. Information sharing between local and national authorities is two-way and regular, ensuring that DEWA's preparedness for emergencies meets the required local and national requirements and standards.

DEWA undertakes Division-wide mock drills based on risk-based crisis situations including (but not limited to) cyber-attacks, fire, accidents due to human error and equipment malfunction to ensure the preparedness and adaptive capacity for handling such emergent and crisis situations. Following each mock drill, a comprehensive review is undertaken indicating the outline of the crisis, response of the various teams, observations, and effectiveness for handling the emergency and scope for improvements, where necessary.

Business Continuity & Crisis Management in DEWA is governed by the Crisis Management Committee (CMC).

Crisis Media Response & Communications

DEWA has a media response and crisis communications plan in place with pre-defined holding statements to ensure swift and effective communications to employees and the public during emergency situations. DEWA's Crisis Command Centre (CCC) acts as the hub for directing, supporting, and provisioning all the necessary steps during a crisis with direct communication links to Dubai level crisis management teams and the Dubai Media Office.

Innovation & The Future (GRI 103-1, 103-2, 103-3)

DEWA's strategy map has a recurring theme of innovation as one of its five core values. Its innovative efforts have resulted in initiatives that have allowed it to reduce time and effort, save money, keep up with the Fourth Industrial Revolution (4IR), and adapt to the new global transition. Its innovative technology and software innovations guaranteed business continuity during the pandemic's work-from-distance transition. Innovation & The Future Division at DEWA has carefully picked and adopted 4IR disruptive technologies such as AI, Robotics, Blockchain, Big Data, Internet of Things (IoT), and Unmanned Aerial Vehicles from among the variety of emerging technologies that are trending. DEWA Accelerator Programmes include:

- Partnership with Berkeley Artificial Intelligence Research Lab (BAIR), making it the 1st public utility in the world to forge a strategic partnership with BAIR Lab.
- 1st utility to partner with World Economic Forum (WEF) 4IR Centre to keep pace with the 4IR and develop technologies in the power and water sector.
- 1st utility in the world and 1st organisation outside the USA to participate in the Microsoft Quantum Computing Programme.
- 1st Utility in the region to adopt the state-of-art robotics such as the spot robot of Boston Dynamics Inc.
- The UN E-Government Survey 2020 recognised Rammas, DEWA's virtual AI-based employee, as one of the best practices of local governments. It highlighted it as a model for using emerging technologies. UAE ranked 1st in the Arab World and 8th globally in the Online Service Index within the E-Government Development Index.
- DEWA is the world's first government utility to provide Arabic services on Amazon's Alexa. Customers can review their monthly bills in Arabic, details of electricity and water consumption, and connect their DEWA account to other Amazon accounts.

DEWA has taken many initiatives based on good scientific foundations and with a clear vision to foresee future obstacles and turn them into potential opportunities, based on the wise leadership's orders to anticipate and keep pace with the latest advances in strategic sectors. DEWA has created a Future Innovation Agenda that includes Dubai 10X 1.0 and Dubai 10X 2.0, as well as participation in a number of accelerator programmes.

DEWA has collaborated on new technologies relevant to the core (power and water provision), adjacent (new technologies for power and water provision), and beyond (digitalisation) businesses through the Innovation Agenda with various government, utilities, enterprise-level companies, start-ups, and innovators.

DEWA's Participation in Global Accelerators Programmes

Today, DEWA is one of the world's leading utilities, not only in anticipating the future but also in creating it. DEWA's participation in global accelerators programmes, such as the Dubai Future Accelerators Programme and the Free Electrons Programme, is part of the 'organisation's efforts to increase adoption of emerging and disruptive technology, latest trends, and innovative solutions that address DEWA's current and future challenges through leading startups worldwide. Such a collaboration with startups, that have the agility, fresh ideas, and cutting-edge knowledge to co-create solutions that improve the 'organisation's operations and efficiency, also opens up new opportunities for DEWA including joint intellectual property opportunities and potential investment and revenue diversification opportunities through DEWA's subsidiaries. Startups from around the globe, through such a collaboration with DEWA, get the opportunity to develop a viable pilot side by side with DEWA refining their company's solution, co-creating the future of energy and exploring options to jump start their company's growth.

AI Procurement Framework

DEWA was the first entity in the UAE and the first utility in the world to develop and implement an AI framework, which has been endorsed by the World Economic Forum as a global best practice.

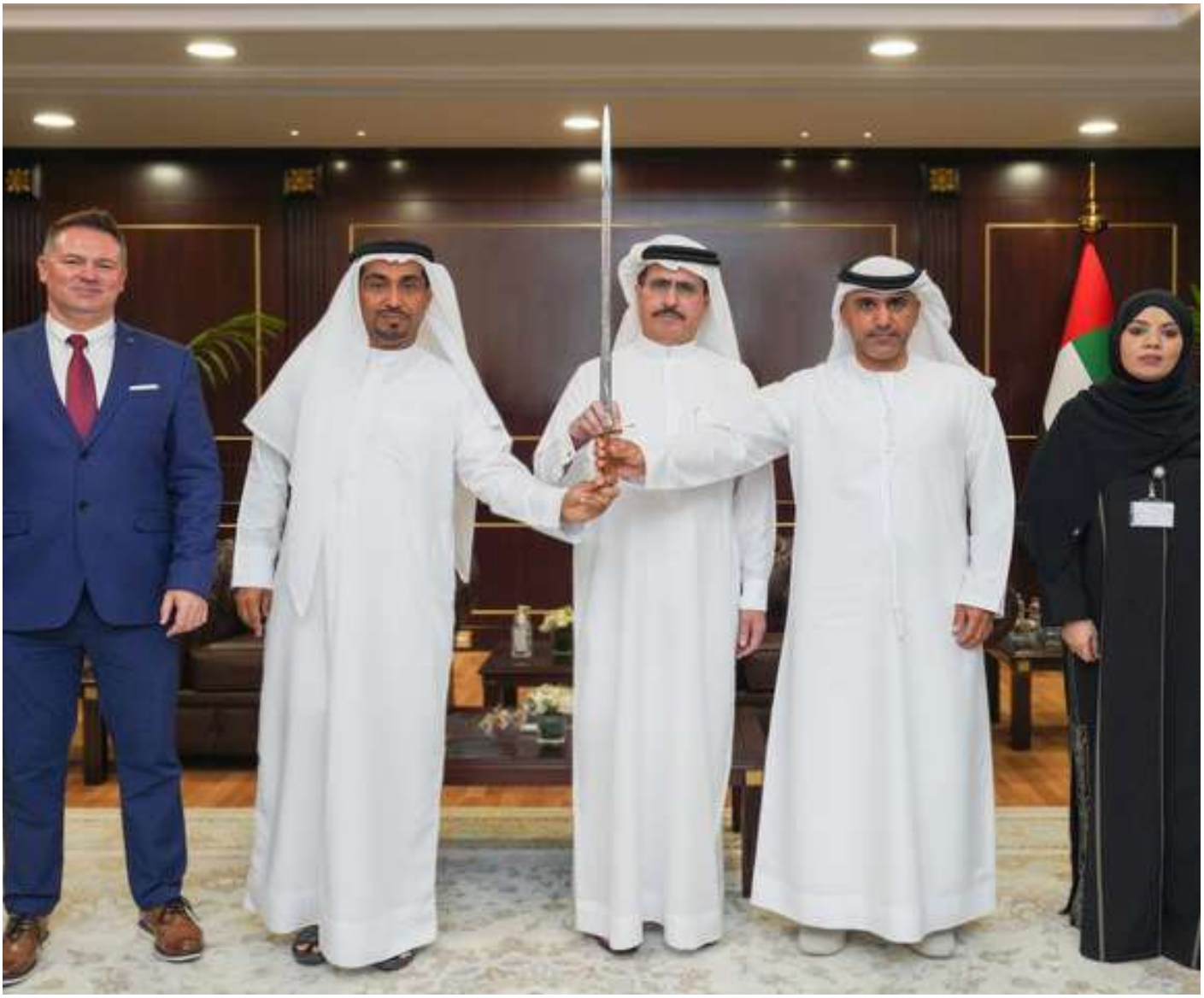
The new Artificial Intelligence Procurement Framework specifies the new AI Procurement rules and the actions to be followed when procuring an AI system / solution in a safe, ethical, and innovative manner while reducing time and effort. The goal is to reconfigure traditional procurement in the context of AI and determine what extra needs should be taken into account. Furthermore, it aspires to give AI system evaluation criteria such as data accuracy, fairness and openness of algorithmic-based decision flow , intended use, effectiveness of the system , and data security.

The AI Procurement Guidelines were created to help organisations stay up with rapidly evolving technologies while also reducing risk. DEWA will be able to set the appropriate policies, procedures, operational level agreement matrix, and assessment criteria as a result of the procedure, allowing for the effective, responsible, and ethical use of AI.

Excellence

DEWA adopts Dubai Government Excellence model, as the main driver for continuous improvement and to motivate employees on the importance of excellence as one of the ways of transforming the government of the future and satisfying and exceeding expectations of stakeholders with an emphasis on customers. It adopted the Balanced Scorecard (BSC) and Dubai Government Excellence Program principles and guidelines. In addition, DEWA takes into account other excellence models & criteria including EFQM, Investor in People, Harvard Business Council and others. Its achievements have become a role model for excellence, locally and regionally.

These achievements contributed to DEWA receiving over 383 local, regional and international awards and certificates since 2015. In addition, DEWA achieved 100% compliance with Dubai Electronic Security Center (DESC) KPI requirements in Cyber Security KPI Assessment DESC.



DEWA Awards & Certificates

In 2021, DEWA has won 59 awards and certificates at an international, regional and local level. The awards spanned various fields including Excellence, Innovation, Governance, Human Resources, Sustainability, Corporate Social Responsibility, Health & Safety, Environment, Business Continuity & Resilience, Smart Government and Artificial Intelligence.

Local Awards - Quarter 1

Name of the Award	Category
UAE Ideas 2020	Promoting Business

Local Awards - Quarter 2

Name of the Award	Category
Hamdan Bin Mohammed Program For Government Services	Best Government Initiative in Hamdan Bin Mohammed Program For Government Services (Services Flag)

Local Awards - Quarter 4

Name of the Award	Category
DGEP Award	• Dubai Model for Specialised Employee • Dubai Model for Young Employee • The Unknown Soldier • The Elite Award • The Best Entity in the Emiratisation Field Award

Regional Awards - Quarter 1

Name of the Award	Category
Project Finance International Award	2020 Middle East and Africa Renewable Deal of the Year

Regional Awards - Quarter 3

Name of the Award	Category
ACSR	Public Sector
Sheikh Khalifa Excellence Award in SKEA	The Elite Category

Regional Awards - Quarter 4

Name of the Award	Category
Asian Power	• Information Technology Project of the Year • Battery Storage Project of the Year

International Awards - Quarter 1	
Name of the Award	**Category**
EFQM Challenges	UN SDGs Challenge
Best Business Awards	Best Customer Focus
EFQM Global Excellence Award	Global EFQM Award - Award Winner
ICMG	Best Digital Architecture in Support Function
ICMG	AI Enabled Solution

International Awards - Quarter 2	
Name of the Award	**Category**
IJ Global	MENA Renewable Deal of the Year
Global Business Excellence Awards	Outstanding Innovation
US Green Building	2021 USGBC Leadership Award for Middle East
Harvard Business Council Awards	• Organisational • Innovation • Dealing with Covid • Information Technology • Health & Safety • Projects Award
13th Annual 2021 Golden Bridge Business and Innovation	• New Product & Service Innovation | Education Awards Categories Group • Information Technology Users | Campaign, Outstanding Achievement, Project or Initiative, and Team-Department Awards Categories Group • New Product & Service Innovation | Best New Product or Service Awards Categories Group • Creative | Web, Social Media, and Online Presence Awards Categories
The 8th Annual 2021 Customer Sales and Service (Globee)	• Grand Globee Winners • Handling Complaints Customer Service & Support Team of the Year Consumer Products & Services Gold • Best Customer Engagement Initiative of the Year Gold • Customer Service Training or Coaching Program of the Year Gold • Customer Service Training or Coaching Program of the Year Gold • Best New Product or Service for Customer Service Silver • Customer Service & Support | Company Rethinking of the Year Creative Ways Companies are Rethinking Customer Service & Support During COVID-19 Bronze • Contact Centre of the Year (100 seats or less) Gold

International Awards - Quarter 3

Name of the Award	Category
International CSR	• Emission Reduction • Innovation
International Digital Experience	Best Use of AI, Chat Software (Bronze)
Ideas America	• Breakthrough Innovation Idea of the Year • 2 awards - Green Idea of the Year • 2 awards - Team Idea of the Year • Idea of the Year Individual • Safety Idea of the Year • Champion of the Year • Best Program Administrator
12th Global Continual Improvement & Innovation Symposium & Award 2021	• Innovation Category • Kaizen Category
Hall Of Fame	Hall Of Fame

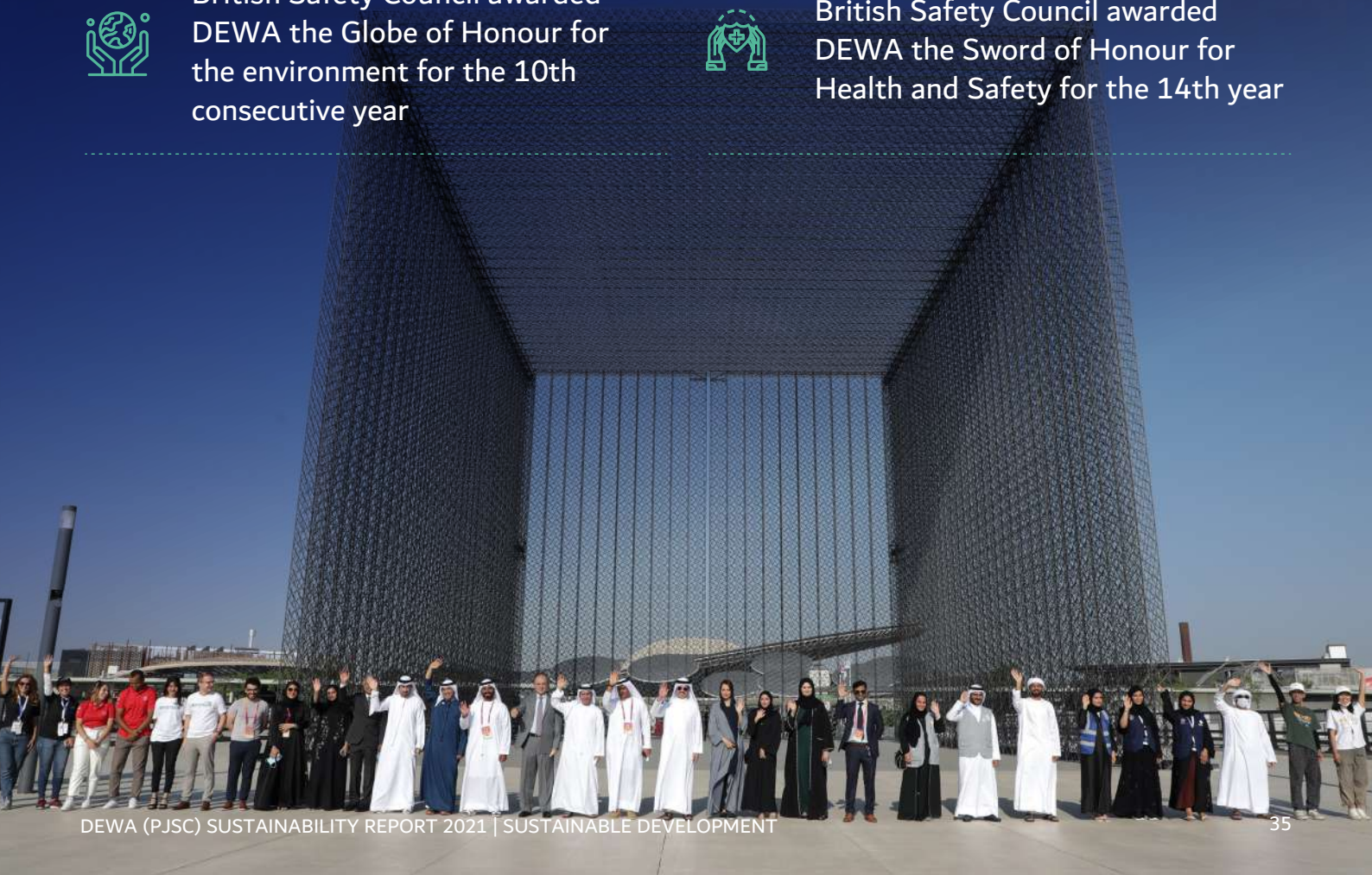
International Awards - Quarter 4

Name of the Award	Category
Sword of Honour	Sword of Honour
Innovation Management Kitemark	Innovation (#1 Gov Entity worldwide)
Brandon Awards 2021	Best Advance in AI and Machine Learning
Sword of Honour	Sword of Honour
Globe of Honour	Globe of Honour
Green Apple for Environment Best Practice	• Fuel Efficiency (Champion) • Carbon Reduction (Gold) • Innovation (Bronze) • Waste Management (Bronze)
Innovation Management Kitemark	Innovation (#1 Gov Entity worldwide)

Chapter 02

Sustainable Development

- 92% Employee Happiness in 2021
- 1.43 Customer Minutes Lost
- 5.3% Water Line losses
- 3.3% Electricity network line losses
- World's first utility to use nanosatellites to improve its operations (part of DEWA's Space-D programme)
- British Safety Council awarded DEWA the Globe of Honour for the environment for the 10th consecutive year
- 11.4% share of the clean energy capacity of DEWA's energy mix
- Over 325 electric vehicle charging stations installed across Dubai
- Reduction of 73 million tonnes of CO_2 emissions from 2006 to 2021
- Cumulative efficiency improvement of 37.63% between 2006 and 2021
- 1st pilot Green Hydrogen facility in the Middle East and North Africa
- British Safety Council awarded DEWA the Sword of Honour for Health and Safety for the 14th year



Management Approach

(GRI 103-1, 103-2, 103-3)

DEWA has embedded sustainability within its operations, services, and business decisions from a very early stage. It is the first government organisation to include sustainability in its vision. DEWA's leadership is committed to fostering a culture of sustainability within DEWA and amongst all its stakeholders. Its workforce also cares about sustainability, knows about it, and makes it a priority in decisions about their day-to-day operations and projects.

DEWA's vision is to build a more sustainable future. This is achieved by building unique partnerships and developing a skilled workforce by continuously supporting their growth and development and promoting an organisational culture that encourages equality, integrity, and fairness. Also, the vision ensures the highest level of operational reliability, efficiency and deliver sustainable profitable growth as well as integrating environmental consideration into its business operations and strategy. Overall, the vision accelerates sustainability internally within its supply chain, thus creating benefits for all its stakeholders and creating sustainable value for everyone. This has accelerated DEWA's progress toward becoming an industry leader, as it has incorporated the three aspects of sustainability, economy, society, and the environment, into its strategy.

DEWA is a key player in adopting world-class practices in sustainability. DEWA is proactively planning to create a sustainable future for our descendants.

Sustainability Governance (GRI 2-27)

DEWA has adopted sustainability and considers it a part of its strategy. The Business Development & Excellence division has a dedicated Climate Change & Sustainability department (CC&S) under it. The department's main scope is to establish, develop, and lead DEWA's corporate sustainability programme to address the needs of all stakeholders in a balanced manner, while promoting the actions and practices that demonstrate DEWA's approach to sustainability.

The Climate Change & Sustainability department is aligning its work to achieve the sustainable agenda goals of the UAE, Dubai, and the world. Its main projects are reporting on sustainability, stakeholder engagement, annual awareness campaigns and initiatives, DEWA's emissions-reduction programme, carbon offsetting, identification of climate change risks and their impact on DEWA's operations, setting the relevant climate change resilience plans, mitigation and adaptation programmes for the power and water sector, behavioural efficiency programmes for residential customers, and the ISO50001 Energy Management System (EnMS), and certification of DEWA.

DEWA's Sustainability Leading Team (SLT) has a crucial role in supporting the CC&S department. The members are representatives from each division, who obtain, review, and verify data and information. The SLT is also responsible for delivering an annual awareness session to their respective divisions and to DEWA employees about the latest topics and trends in sustainability and how they can link them to their day-to-day work. The SLT was established in 2013, and its members come from various backgrounds.

DEWA's Chief Climate Change and Sustainability Officer chairs the SLT, which provides updates on sustainability issues for the Executive Vice-President of Business Development & Excellence to present to DEWA management.

During 2021, SLT members conducted virtual webinar sessions on the 17 Sustainability Development Goals to educate employees in their divisions and across DEWA.

Research and Development

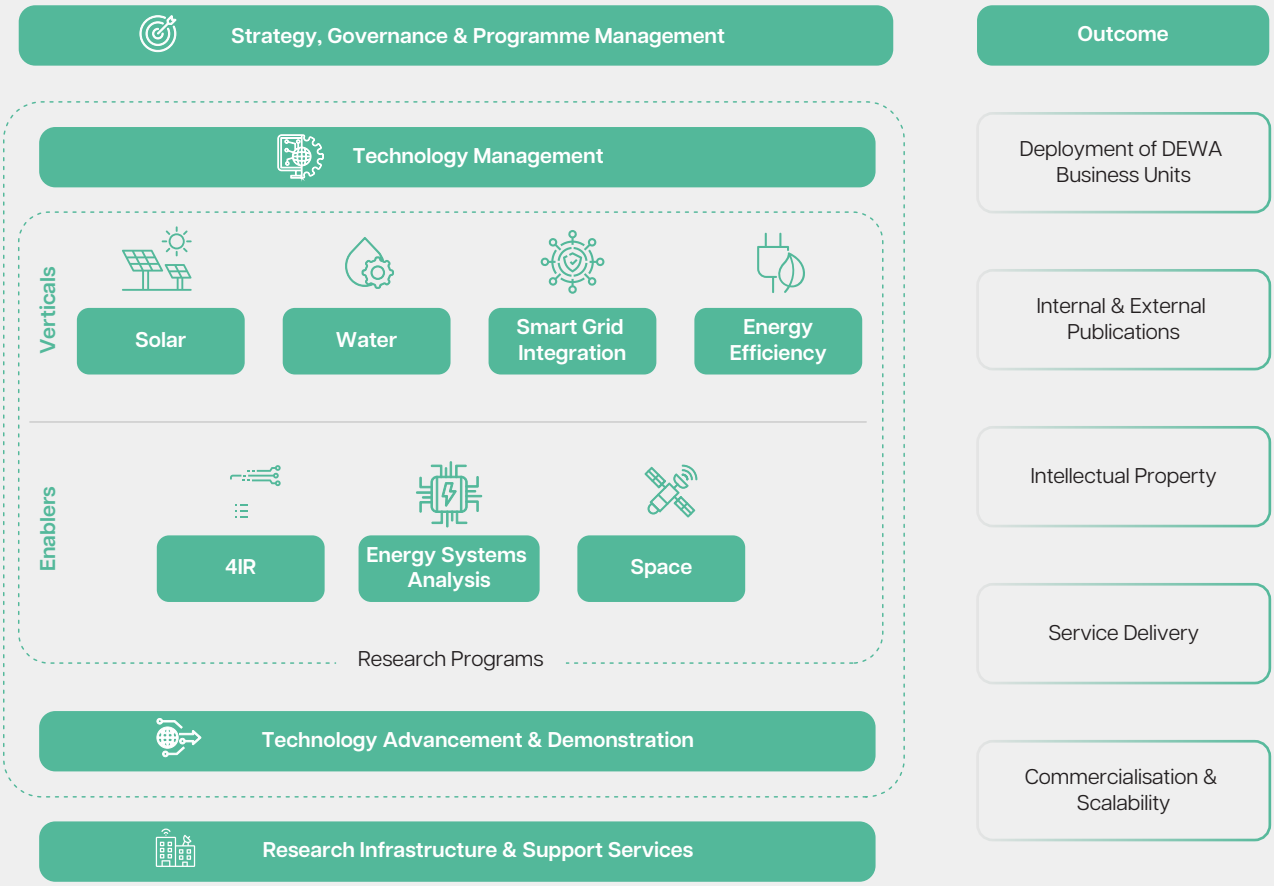
(GRI 103-1,103-2,103-3)

The vision behind DEWA's Research and Development (R&D) Centre is to create a globally leading platform for developing and demonstrating promising solutions for future energy and water systems. The R&D Centre generates value for DEWA by conducting applied research to support DEWA and its subsidiaries in providing cost-effective, world-class services. The Centre follows international best practices in R&D and supports the objectives of the Dubai Clean Energy Strategy 2050 to diversify the energy mix and increase energy efficiency with local innovation. The R&D activities are conducted in-house and in cooperation with international institutions.

R&D Research is focused on four core areas of research: Solar, Water, Energy Efficiency, and Smart Grid Integration. These core areas are supported by 3 Enablers. The first is the Fourth Industrial Revolution including AI, the Internet of Things, Robotics & Drones, 3D Printing & Advanced Materials. The second is Space and the third is Energy System Analysis. The Centre has 44 permanent staff: 70% are Emiratis and 34% are women. The DEWA R&D Centre is located at the Mohammed bin Rashid Al Maktoum Solar Park with a surface area of 4,500 square meters for offices and laboratories operational since 2018 and open areas for hosting additional facilities. The R&D Centre facilities include the Solar Lab, Outdoor Test Facility (OTF), 3D-Printed Robotics and Drone Lab, Advanced Materials Lab, Additive Manufacturing Lab, High Performance Computing Cluster, Energy Storage Testing and Validation Field, Green Hydrogen Pilot, an experimental photovoltaic-driven Reverse Osmosis test system, Knowledge Management Centre (library) and others. The OTF has an advanced solar resource station with a weather station and an advanced weather station with more advanced sensors, solar photovoltaic testing facility for state-of-the-art photovoltaic modules, a Building-Integrated Photovoltaics (BIPV) testing facility, and a Cleaning Test Field to be commissioned in 2022.

DEWA R&D Centre

A globally leading platform for developing and demonstrating promising solutions for the future energy and water systems



DEWA's Research & Development Journey

DEWA R&D continues to forge strong local and international partnerships and collaborations with government, industry (major corporations, SMEs, and start-ups), and academia. The R&D Centre made 32 Scopus-indexed contributions in 2021 to international conferences and publications in international journals, and has been actively involved with the international scientific and technical community. The Centre has published 85 articles since 2017.

Pre 2013
- R&D activities are done at core DEWA divisions
- However, fragmented and not strategised (Project-based R&D)

2014
- Launch of the National Innovation Strategy
- Launch of 5 Yr R&D Strategy

2015
- Detailing of R&D roadmap and plans
- OTF development and opening

2016
- Start of Solar & Water research areas
- Launch of Solar Decathlon Middle East (SDME)

2017
- R&D Center construction
- Start of SGI and 3DP research areas
- Completion of 3D lab
- First patent filed

2018
- Completion of R&D Center
- Solar lab commissioning
- Start of 4IR research area
- Major expansion of projects portfolio
- Initiation of Green H2 Project
- SDME 2018 event and competition

2019
- Launch of 5 Yr R&D strategy
- Stanford Energy membership
- Started expansion of facilities and labs
- First patent awarded

2020
- Start of Space research area and Space-D Initiative
- Won 2 Ideas America Awards

2021
- Inaugration of Green H2 plant (May)
- SDME 2020 event & competition
- Won 1 Ideas America Award
- Guinness World Records: First 3D printed lab

2022
- DEWASAT1 Launch (Jan)

Highlights of Sustainability in Research Output

Solar Research

The Solar Research Area studies ways to improve solar photovoltaic technologies to mitigate the effects of dust and extreme desert conditions on the performance of solar BIPV and photovoltaic panels, while testing their long-term reliability and developing appropriate standards.

In the Outdoor Testing Facilities, DEWA's researchers are testing and benchmarking the long-term reliability and performance of different photovoltaic technologies. This data is used to assess the degradation modes and ageing characteristics of PV modules under desert conditions.

The Solar Resource Assessment and Forecasting programme is developing in-house, high-resolution models of irradiance and weather forecasting for the Mohammed bin Rashid Al Maktoum Solar Park, which is made available to DEWA business units.

Water Research

The Water Research Area assesses and develops sustainable solutions for the desalination and purification of water using solar power (Photovoltaic Reverse Osmosis (PVRO) and Forward Osmosis), detect and reduce water transmission losses, and reduce resource use by minimising brine effluent.

The PVRO is designed to increase permeate water recovery (recovery = 50%) with two stages and multiple passes. It is retrofitted as a research-lab for testing and evaluating RO-related technologies (pre-treatments, fouling mitigation simulations, post-treatments. Ex. membrane distillation). So far, the installation has been used to develop and validate a detailed scaling model for Reverse Osmosis systems that can be used in industrial installations for optimising anti-scalant dosage, in partnership with Khalifa University.

Smart Grid Integration Research

The Smart Grid Integration Research Area evaluates and develops systems to facilitate and optimise the integration of renewables in the grid while maintaining power quality standards. This includes the use of electricity storage systems (chemical, thermal, and mechanical technologies), and the aggregation of distributed energy and storage resources, such as Virtual Power Plants (VPPs) and electric vehicle chargers.

Two research projects are directly supporting the integration of renewable energy by testing and validating the performance of energy storage solutions and the aggregation of controllable loads, renewable energy and storage in the form of a VPP. The VPP has now expanded to integrate a total of 3.0MW of assets including chillers, batteries and other Distributed Energy Resources (DER). It is undergoing tests for its capability of scheduled demand response and reliable power control. The pilot VPP has been used to investigate the optimal scheduling of assets to assist in providing synthetic reserves. Two utility scale battery technologies (NaS and Li-Ion) with 7.2MWh each are installed and under continuous testing for their ability to provide utility services including ramp-rate control, frequency control, and constant power from variable sources.

Energy Efficiency Research

The Energy Efficiency Research Area aims to foster smart and sustainable development, reduce the waste of energy by improve the efficiency of energy systems (with a focus on cooling), and overall accelerate the clean energy transition in the built environment. Its research work identifies, develops, and validates innovative solutions that enable smart and efficient energy use, boost renewables, and promote health and happiness.

For example, the Zero Energy Buildings (ZEB) research project focuses on validating design strategies and technologies that reduce the buildings' carbon footprint, minimise their energy demand, and cover their energy requirements with renewable sources. In addition, Energy Efficiency researchers participated in the development of the Dubai unified code for photovoltaics in buildings, including the integration of photovoltaics into building facades. Additionally, there are projects to increase sustainability in the built environment by reducing the energy consumption of cooling systems, studying energy flexibility options for buildings, and using artificial intelligence (AI) and data-driven models to support DEWA's strategic ambitions.

The energy efficiency team is also the main organiser of the Solar Decathlon Middle East (SDME), a globally-recognised event organised by DEWA in collaboration with the US Department of Energy. SDME challenges university students to design, build and operate sustainable solar-powered houses. The competition comprises of ten sub-contests: sustainability, innovation, energy efficiency, architecture, engineering and construction, energy management, comfort conditions, house functioning, mobility, and communication. Universities from the region, United States, Europe, and Asia built their houses at the Mohammed bin Rashid Al Maktoum Solar Park in 2018 and 2021 to exhibit them and have them evaluated by the judges.

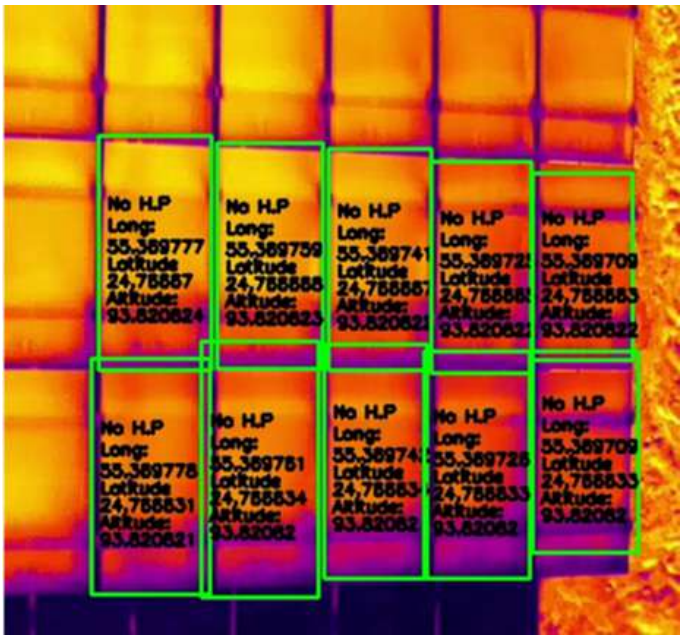
Space Research

The Space-D project aims to develop, pilot, and commercialise use cases based on nanosatellites that specifically address the needs of utility companies. The project was announced in January 2021 and launched its first satellite in January 2022. More details about Space-D can be found at the end of this chapter.

Fourth Industrial Revolution

This research area enables the effective development of solutions that support the core areas. Its robotics and drone solutions are used to provide inspection and maintenance services using unmanned/autonomous operations across the whole utility value chain (e.g. photovoltaic plants, transmission line inspection and maintenance). The AI team develops, tests, and integrates AI technologies for optimisation of grid operations, short-term solar forecasting etc. Internet of Things (IoT) enables remote monitoring diagnostics, and power and asset management using smart sensors and analytics with AI and cloud capabilities. Finally, the advanced materials team provide expertise in the form of forensic analysis of materials to detect failures and the development of advanced energy storage systems (batteries and supercapacitors).

Notable developments in 2021 include the further improvement of the photovoltaics hot-spot detection algorithm by drones and the automation of the report generation of the geographic coordinates using geo-tagging (see figure), the kick-off of a joint project with Stanford University to develop advanced Overhead Line Maintenance automation through robotics and two publications advancing the composition of ionic liquids for flow batteries and supercapacitors.



3D Printing Research

DEWA R&D Centre is developing 3D printing capabilities for addressing DEWA's spare parts and rapid prototyping needs. The facility currently operates 16 3D-printing systems that can use 20 materials such as Advanced Polymers, Composites, Metallic Alloys, and Engineering Resins. Combined, these materials can cover a wide range of applications and use cases within DEWA.

3D-printing is cost-effective and time-efficient for the production of spare parts in Low-Medium batches (Quantity per part design: 1-200), especially if the parts are obsolete or components of assemblies.

3D-printing technologies are strongly aligned with green production routes, as they offer near-zero material waste and no direct GHG emissions, making it sustainable and environmentally friendly. The 3D printed spare parts initiative reverse engineers and digitalises spare parts compatible with 3DP technologies, optimises them with generative design if necessary, and uploads them to a Virtual Inventory (cloud-based). A highly automated process allows for parts to be manufactured on demand through an innovative digital supply chain using a customised online platform. This reduces the lead time and cuts costs and emissions of physical inventories, localises manufacturing and eliminates logistics challenges.

DEWA R&D centre has successfully demonstrated 3D Printing technologies to manufacture functional spare parts for DEWA business units with a number of implemented case studies resulting in a 35+ spare-part digitalised inventory, 2000+spare parts that have been manufactured and dispatched to DEWA business units offering tangible cost savings.

Energy System Analysis Research

Energy System Analysis Research develops and applies advanced capabilities for joint technical and economic assessment of energy-related technologies, systems, and policies. The area develops energy models, lifecycle assessment models, and business strategy assessments to support DEWA's future readiness. It has developed in-house an hourly-resolution optimisation model for the sizing and dispatch of electricity, water, and hydrogen operations. This area models and assesses new energy system configurations and technologies at the macro level with a focus on cost-optimal integration of renewable energy systems and strategies for deployment of new energy technologies.

Sustainability Culture Indicator 2021

The Sustainability Culture Indicator (SCI) is an assessment tool created by a third party that measures the extent to which sustainability has been integrated within an organisation's culture. This includes factors that quantify organisational enablers, individual enablers, and behaviours inside and outside the organisation. DEWA carried out a customised SCI survey in December 2021 with almost 3,000 employee responses. This is the 8th year that DEWA has conducted the survey.

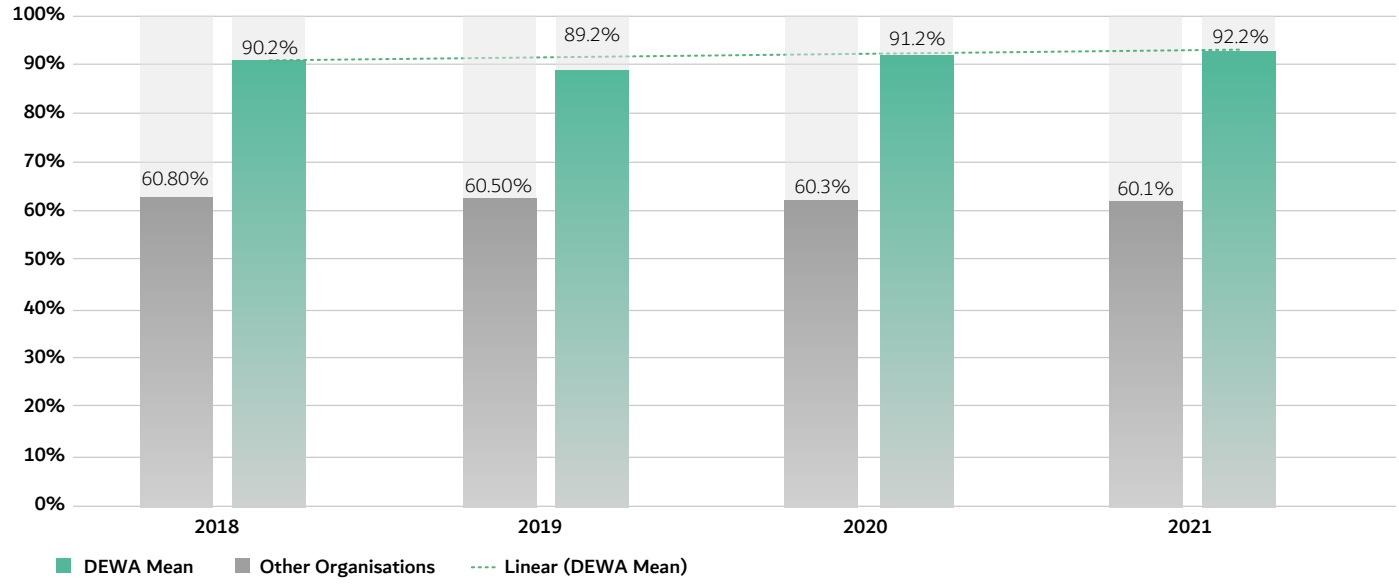
The Sustainability Culture Indicator also measures the effectiveness and the impact of its efforts in raising awareness and engagement on sustainability among its employees. The purpose of the survey is to get an overall understanding of attitudes toward sustainability, and what factors are both helping and hindering staff to achieve sustainability outcomes.

The findings of the 2021 survey see DEWA continuing to record high scores for sustainability engagement, and a positive view of the extent to which the organisations supports sustainability. All the enabler items that were included in the 2020 survey showed an increase in 2021, continuing the upward year-on-year trend over a long period for DEWA.

The importance of Sustainability Awareness training was also underlined in these results. Respondents who have attended training scored consistently higher for every item, including the enablers, behaviour, and understanding of sustainability issues.

In summary, DEWA continues to set the standard in sustainability engagement. The link between awareness training, enablers, and determinants of a culture of sustainability, and actual sustainability-related behaviour, indicates that continued efforts to embed sustainability will see a continuation of DEWA's strong results. This year, DEWA has exceeded its 2020 results (91.2%) and achieved 92.2% in 2021.

DEWA's Overall Sustainability Effort Level



DEWA's Commitment for a Sustainable Future

DEWA is committed to improving its sustainability performance and therefore has set the following commitments for sustainable development to:

- Ensure sustainability is fully embedded into its business strategy
- Engage with its stakeholders, understand and balance their varied expectations and work with them to promote and achieve the UAE's and Dubai's sustainability and climate change agenda
- Promote sustainability internally and within its supply chain, thus creating value for all its stakeholders
- Ensure transparency and accuracy in measuring and reporting of environmental commitments across its business and operations
- Address climate change and is committed to pursue climate change mitigation and adaptation objectives underpinned by the UAE and Dubai steady economic diversification and growth in line with national circumstances and capabilities
- Maintain world-class standards of quality, reliability, efficiency, availability of electricity and water supply for Dubai
- Support the UAE and Dubai's transition into a low carbon economy by deploying initiatives critical to decarbonisation
- Support Dubai's aim to achieve Net-Zero by 2050 with a strong focus on decarbonisation, renewable energy and energy efficient technologies
- Improve water efficiency within its production and distribution networks
- Ensure constant alignment with national and international strategies and best practices
- Develop a talented workforce by continuously supporting their growth and development and promote a working culture that encourages equality, integrity and fairness
- Adopt the highest standards of sustainability & climate change governance, business ethics and social responsibility to serve its stakeholders
- Promote circular economy in its value chain by focusing on optimal resource use creating social, economic and environmental value
- Increase its direct and indirect economic contribution to the Dubai economy
- Invest and develop renewable-energy technologies
- Continue to improve its stakeholders' happiness and wellbeing, creating a positive social impact for its employees and communities
- Adopt and implement a governance framework based on best-in-class global practice
- Increase the share of renewable and clean energy to 7% by 2020, 25% by 2030 and 100% by 2050
- Reduce its employee turnover rate and increase the proportion of UAE nationals in the workforce
- Further implement new Corporate Social Responsibility projects to create shared value and assess DEWA's social impact

The United Nations' Sustainable Development Goals 2030

The United Nations Sustainable Development Goals provide a global blueprint for dignity, peace and prosperity for people and the planet, now and in the future. They address the global challenges the world faces, such as poverty, inequality, climate, environmental degradation, prosperity, peace, and justice.

Six years into the implementation of the Agenda, the COVID-19 pandemic disrupted communities all over the world in 2020. It has become more crucial than ever to reinforce global commitments and unify efforts toward achieving the SDGs. These include joint efforts of governments and businesses alike.

The UAE's leadership have clearly articulated their long-term vision and strong commitment to sustainability. The country has set in place goals and plans to ensure that it can achieve sustainable development. This vision has been encapsulated in documents and plans, such as the UAE Centennial 2071, the Dubai Plan 2030, the 50 Year Charter, the Dubai Clean Energy Strategy 2050, and the Dubai 2040 Urban Master Plan.

DEWA's approach towards aligning its strategies and operations with the SDGs include:

- **Acknowledge and affirm the importance of the SDGs**
- **Identify the SDGs of greatest relevance**
- **Align DEWA's strategy to the SDGs**
- **Build capacity and embed SDGs into decision-making processes**
- **Report publicly on progress**

Since 2016, DEWA has made a decisive effort to systematically explore how it can increase its alignment to the SDGs and be better positioned to contribute to their effective delivery.

DEWA has reviewed all 169 targets to identify those it is best placed to contribute to in the short- (1-2 years), medium- (3-5 years), and longer-term (6+ years) as well as identify the targets of 'high' or 'moderate' priority given its position as a water and energy utility in the UAE. It is important to note that this mapping was not only about correlating existing activities to the targets, but also identifying targets that reflect its vision to become a globally leading, sustainable, innovative corporation.

In 2020, DEWA started a project to update and review the mapping exercise to strengthen its contribution to the SDGs. This will be done by introducing new commitments, key performance indicators (KPIs) and initiatives to address any gaps in DEWA's contributions to the priority targets.

DEWA has identified the following six SDGs where it can have the greatest impact. These goals are also critical for DEWA as a power and water provider:

Some examples of DEWA's contribution to the priority goals are:

Goal 6: Ensure access to water and sanitation for all

- DEWA provides a high reliability of water supply, decreasing the unaccounted for water (UFW) year on year where it recorded 5.3% water line losses in 2021.DEWA meets 100% of customer demand for water in Dubai.

- In 2021, a total of 95.7% of the total recoverable wastewater (process water and treated sewage effluent) generated was reused in Jebel Ali Power Station Complex

- The UAE Water Aid Foundation (Suqia), an entity under the Mohammed bin Rashid Al Maktoum Global Initiatives Foundation and annexed to DEWA, provides humanitarian aid around the world and helps communities that suffer from water scarcity by providing them with access to clean and safe water through sustainable and innovative solutions with the following:
  - o Annual monetary contribution;
  - o Providing human resources and volunteers to support with operations, marketing and projects management; and
  - o Collaborations on research & development

Suqia has positively influenced the lives of over 13 million people in 37 countries.

Goal 7: Affordable and clean energy for all

- DEWA meets 100% of customer demand for electricity in Dubai.
- The availability and reliability of electricity supply is of top priority for DEWA, where it achieved 3.3% electricity line losses in 2021.
- Shams Dubai is DEWA's first smart initiative to connect solar power to buildings. As of 2021, the connected capacity is 398.8 MW.
- DEWA achieved a cumulative efficiency improvement of 37.63% between 2006 and 2021.
- In 2015, Mohammed bin Rashid Al Maktoum Solar Park Phase II tender achieved world record electricity price of 5.84c/kWh while the global average was above 10c/kWh. A second world-record was registered in 2017 as the first below 3c/kWh project for Phase III. A third near-world record was achieved for Phase IV tender at 1.69c/kWh. These projects demonstrated that unsubsidised solar power can compete even with low-cost domestic fossil fuels.

Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

- DEWA has a number of subsidiaries which contribute to greater economic diversity
- DEWA's Hatta Pumped Storage Hydro Power Plant will provide the basis for a tourist complex and create new job opportunities. Around 2,000 job opportunities are expected. The expected capacity for the plant is 250 MW x 6 hours with cycle efficiency of 78.9%.
- DEWA has a policy for happiness and engagement of People of Determination. It developed the People of Determination Innovation Incubator initiative aiming to enable its subsidiaries to adopt inclusive employment practices as well.
- DEWA offers equal pay for employees at the same level/grade.
- DEWA launched DEWA Academy as part of its strategy to shift Dubai's energy sector to a new stage of growth and progress. 190 students enrolled in DEWA Academy for the 2020-2021 academic year.

Goal 9: Build a resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation

- Provide reliable power and water supply to businesses and households in Dubai
- The first Green Hydrogen Project was launched at the Mohammad bin Rashid Al Maktoum Solar Park
- Building-Integrated Photovoltaics technology for the R&D Centre.
- DEWA's Water & Civil Division had a significant role in research and development of new technologies including solar technologies and AMI metering systems using battery systems which then helps to reduce the commercial costs of energy systems and allows suppliers to expand their sales to developing countries at lower costs. This indirect support helps in sustainable energy costs.
- DEWA has an active role in the reinforcement of the electrical interconnection with UAE utilities through the Emirates National Grid (ENG)

Goal 12: Ensure sustainable consumption and production patterns

- DEWA issues a Sustainability Report on an annual basis
- Safe handling of chemicals to minimise release to atmosphere, ensure availability of suitable PPEs for chemical handling staff.
- DEWA increases plant efficiency, decrease fuel consumption
- DEWA supports the implementation of the Dubai Demand Side Management Strategy (DSM) 2030. It has an active role in contributing to several pillars including Shams Dubai, Consumer Behaviour and Tariff Rates.
- DEWA has established a committee for Energy Management of its premises
- DEWA developed various systems to ensure that people everywhere have the relevant information and support environmental sustainability such as Smart office application, Smart correspondences, Climate Change & Sustainability Awareness tile within its Smart Office application, and the Rammas Virtual Agent powered by AI available 24/7.

Goal 13: Take urgent action to combat climate change and its impacts

- DEWA plays an essential role in achieving the targets set by the Dubai Clean Energy Strategy (DCES) 2050 by working to generate 100% of Dubai's total power output from clean energy by 2050
- DEWA shares the global response to climate change by reducing or avoiding greenhouse gas emissions through initiatives like: Diversification of Fuel Mix, Supply Side Energy Efficiency, Demand Side Management and CO2 Emissions Reduction Programme.
- In 2020, DEWA contributed to the achievement of the Dubai Carbon Abatement Strategy (CAS) 2021 target two years ahead of the targeted date achieving 33% reduction in tons CO2 compared to business as usual.

DEWA's Secondary Goals

Goals 5, 11, 14, 16 and 17 are also considered important priorities for DEWA as a leading sustainable innovative corporation:

These priorities go beyond what a water or electricity utility would see as directly material and instead reflect DEWA's status as a major employer, community partner and player in the country and markets within which it operates. Examples of DEWA's contribution towards the secondary goals:

- Ensure any wastewater quantity and quantity discharged into the sea is within permitted levels at all times.
- DEWA designed the "For Her Ambassador Leadership programme" in collaboration with the University of Cambridge Institute for Sustainability Leadership (CISL), and ran 2 successful cycles of the program
- 36% of women in DEWA hold leadership or management positions
- DEWA has a Women's Committee to empower female employees in the workplace and support them in creating a work-life balance.
- DEWA has strong partnerships with government entities, the private sector and academia to ensure there are collaborative efforts towards achieving sustainable development for Dubai.

DEWA & the UN Global Compact: Communication on Progress 2021

DEWA is a signatory of the UN Global Compact (UNGC) since 2017. This is the world's largest corporate sustainability initiative, with over 13,000 corporate participants in more than 170 countries. The Global Compact is based on 10 fundamental principles relating to human rights, labour, environment and anti-corruption. In February 2019, DEWA was invited by the UNGC to take a seat and chair the UNGC UAE Local Network. This came as a result of DEWA's proactive role in contributing to the Global Agenda and in recognition for the support DEWA has shown to the UN Global Compact since joining in 2017.

DEWA is committed to the 10 principles of the UNGC, which are integrated in the policies and processes of the organisation. DEWA uses the 2021 Sustainability Report as its Communication on Progress for the UN Global Compact (UNGC). Throughout the report, there is information related to DEWA's social and environmental practices which underline its commitment to the Global Compact. The following table lists the compliance of DEWA with the 10 Global Compact Principles, by making reference to the relevant chapters and GRI indicators of the Sustainability Report.

The Ten Principles of the UN Global Compact	The Sustainable Development Goals	Material Topics	Reference on the Sustainability Report or Description of the Management approach	GRI Standards Indicator
HUMAN RIGHTS				
Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights		Occupational health and safety Human rights assessment	Chapter 1 Full compliance with relevant federal and local legislation and international conventions. Social accountability policy, Governance policy	2-7 2-6 2-30 403-1 412-1 412-2 412-3
Principle 2: Businesses should make sure that they are not complicit in human rights abuses.			Chapter 1 Full compliance with relevant federal and local legislation and international conventions. Social accountability policy, Governance policy	2-7 2-6 2-9 412-1 412-2 412-3 403-1
LABOUR				
Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining		Socio-economic Compliance Occupational health and safety	Chapter 1,7 Full compliance with relevant federal and local legislation and international labour standards worldwide. Social accountability policy	403-1 2-30
Principle 4: Businesses should uphold the elimination of all forms of forced and compulsory labour.			Chapter 1,7 Full compliance with relevant federal and local legislation and international labour standards worldwide. Social accountability policy	419-1 412-1 412-2 412-3
Principle 5: Businesses should uphold the effective abolition of child labour.			Chapter 1,7 Full compliance with relevant federal and local legislation and international labour standards worldwide. Social accountability policy	419-1 412-1 412-2 412-3
Principle 6: Businesses should uphold the elimination of discrimination in respect to employment and occupation.			Chapter 1,7 Full compliance with relevant federal and local legislation and international labour standards worldwide. Social accountability policy	

The Ten Principles of the UN Global Compact	The Sustainable Development Goals	Material Topics	Reference on the Sustainability Report or Description of the Management approach	GRI Standards Indicator
ENVIRONMENT				
Principle 7: Businesses should support a precautionary approach to environmental challenges.		Energy Water & Effluent Emissions Waste Procurement Practices Innovation Research and development Net zero carbon emissions Environmental compliance	Chapter 5,6 Full compliance with relevant federal and local legislation. Sustainability policy	
Principle 8: Businesses should undertake initiatives to promote greater environmental responsibility			Chapter 3,4,5,6 Full compliance with relevant federal and local legislation. Sustainability policy	201-2 302-4 303-1 303-2 303-3 305-5 306-3 306-5 307-1 305-6 305-7 306-4
Principle 9: Businesses should encourage the development and diffusion of environmentally friendly technologies			Chapter 2,3,4,5,6 Full compliance with relevant federal and local legislation. Sustainability policy	R&D
ANTI-CORRUPTION				
Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery		General disclosures	Chapter 1 Full compliance with relevant federal and local legislation Whistleblowing policy, Conflict of Interests and Non-Disclosure of Information Regulation, Code of conduct	2-6 2-15 2-23 2-27

Stakeholder Engagement (GRI 2-29)

Stakeholders represent a key element in any strategy, as they are the most involved and influential in helping to achieve it. DEWA's strategy and objectives centre on its stakeholders, as well as continuous communication and collaboration with them. This is why stakeholder engagement is so important, along with understanding their needs and expectations. This enables DEWA to keep improving its performance, services, and initiatives to ensure the best possible happiness and service delivery.

DEWA uses its stakeholder management framework to identify the methods of delivering the best and most inclusive engagement to ensure valuable outcomes, in alignment with the principles of both the AA1000 Stakeholder Engagement Standard 2015 and the Global Reporting Initiatives' Sustainability Reporting Standards. DEWA's key strategic Initiatives relating to its stakeholders from the strategic objective "S02 engaged and happy stakeholders" key initiatives were developed and continuously reviewed which include:

- **Organising stakeholder-engagement workshops for its key stakeholder groups**
- **Defining a compelling, overarching value proposition for each stakeholder group**
- **Managing and responding to stakeholders' needs and expectations**
- **Seeking new opportunities through multi-stakeholder partnerships to advance sustainable development**
- **Establishing community-based initiatives that benefit Dubai and the UAE**

Stakeholder Analysis 2021

DEWA conducted a stakeholder prioritisation exercise to categorise and rank its stakeholders in terms of Involvement (the importance of the relationship for the stakeholder), and Influence (the importance of the relationship for DEWA). DEWA's Corporate Strategy department is responsible for reviewing the list on an annual basis and updating it if necessary as well as ensuring that DEWA's strategic plan includes fulfilling the needs and expectations of prioritised stakeholder groups.

- **PROVIDER OF CAPITAL/ INVESTORS**
  - Institutional investors, local & foreign banks, financial services
- **GOVERNMENT**
  - Federal, Local
- **EMPLOYEES**
  - Top Management, Middle Management, Non-supervisory
- **PARTNERS**
  - Strategic Partners, Main Partners
- **CUSTOMERS**
  - Infrastructure & Network Projects Owners, Infrastructure & Network Direct Customers, Electricity & Water Supply Customers, Potential Customers
- **SUPPLIERS SUB-CONTRACTORS**
  - Strategic, Basic, Core
- **SOCIETY & FUTURE GENERATION**
  - Environmental Entities, General Public, Media

DEWA Stakeholder Engagement Activities

DEWA has a Stakeholder Happiness department. The purpose of the department is to dedicate adequate resources to oversee and coordinate the efforts of stakeholder management across all DEWA divisions to meet stakeholders' expectations. It develops and deploys its Happiness Strategy by understanding the needs of all stakeholders (Customer, People, Government, Capital Investors, Partners, Suppliers & society). Also, it delivers products and services beyond stakeholder expectations and anticipates their future needs. Moreover, DEWA continuously measures its stakeholders' happiness level and responds appropriately. All these elements are working together to ensure best representation of the UAE to the World. In addition, this supports DEWA's aim to create sustainable value for all its stakeholders.

To support DEWA's aim of creating sustainable value for all its stakeholders, the Stakeholders Happiness department identified key divisions within DEWA as champions to be responsible for managing the happiness of a stakeholder group. The champions are responsible for following up on and reporting on outcomes from the associated projects and initiatives. In addition, DEWA has identified a registry form to identify the definition of a stakeholder, its sub-categories, preferred channel of communication, factors affecting DEWA's relationship with the stakeholder, and the best ways to engage.

DEWA runs an annual creativity lab with each of its stakeholder groups. During the meeting, DEWA presents its latest achievements and the champions provide information and updates relevant to the stakeholder group. It is an opportunity to get direct feedback from and brainstorm new ideas with stakeholders.

DEWA regularly engages with its stakeholders through a range of initiatives and communication channels, such as satisfaction surveys, roadshows, joint ventures, and partnerships with government agencies on regulatory matters as shown in the below:

INFORM

(One way process of providing information to stakeholder)

- Awareness sessions
- Market campaigns
- Media events
- Incentive programmes
- Corporate strategy presentation sessions
- Student visit
- Road shows

CONSULT

(Stakeholder asking questions & organization providing answers)

- Happiness Surveys for all stakeholder groups
- Written and verbal communication
- Topic-specific surveys
- Direct customer feedback
- Supervisor interaction

INVOLVE

(Two-way engagement & learning but stakeholders act independently)

- One-on-one meetings
- Supplier management
- Seminars
- Various programmes
- Customer suggestion schemes
- Mystery shoppers

COLLABORATE

(Joint learning decision & actions)

- Sustainability stakeholder workshops
- Joint ventures
- Public private partnerships

EMPOWER

(Stakeholder play a role in governance)

- Actively supporting government policy & regulation

Stakeholder Needs And Expectations

DEWA takes both a consistent and transparent approach to engage directly with its stakeholders in the most suitable manner. This is reflected in the stakeholders' register form which documents the communication options available and preferred for each category to ensure accessibility for all. DEWA engages with its stakeholder groups in a variety of ways. For example, in 2021, the Stakeholder Happiness Department conducted 7 creativity labs with the 7 main stakeholders. The feedback is recorded and shared with the management and concerned teams internally to be integrated into decision-making. For each stakeholder category, the following table shows the most important needs expressed during its engagement activities:

Stakeholder	Needs & Expectations
Government	▪ Aligning with national development plans & programmes ▪ Commitment to good citizenship ▪ Regulatory compliance
Customers	▪ Quality safety and cost - effectiveness of service ▪ Ethical business ▪ Reducing the environmental impact of organisation activities
Employees	▪ Secure working environment ▪ Competetive salaries ▪ Ethical behaviour ▪ Non-discrimination & recognition ▪ Investment in professional developments ▪ Career progression & recognition
Partners	▪ Sharing best practices ▪ Continuous and systematic dialogue and engagement ▪ MoUs to collaborate on issues
Society and Future Generation	▪ Transparency and effective communicaton ▪ Raising awareness on sustainability issues ▪ Supporting social and cultural initiatives ▪ Management of environmental impacts of organisation activities
Suppliers	▪ Supplier qualification based on cost and quality including environmental and social assessment ▪ Transparent procurement processes ▪ Profitability
Providers of Capital/ Investors	▪ Creating value in the short and long term ▪ Reliability, profitability and transparency

The effectiveness of stakeholder engagement activities are measured within a centralised Happiness Index Dashboard accessible to the top management. The dashboard displays the perceptions of all stakeholders' groups, presents the happiness initiatives for all concerned stakeholder champions along with the progress, show benchmarking results at a local and international level, displays the stakeholder's prioritisation weights and includes the stakeholders' register form.

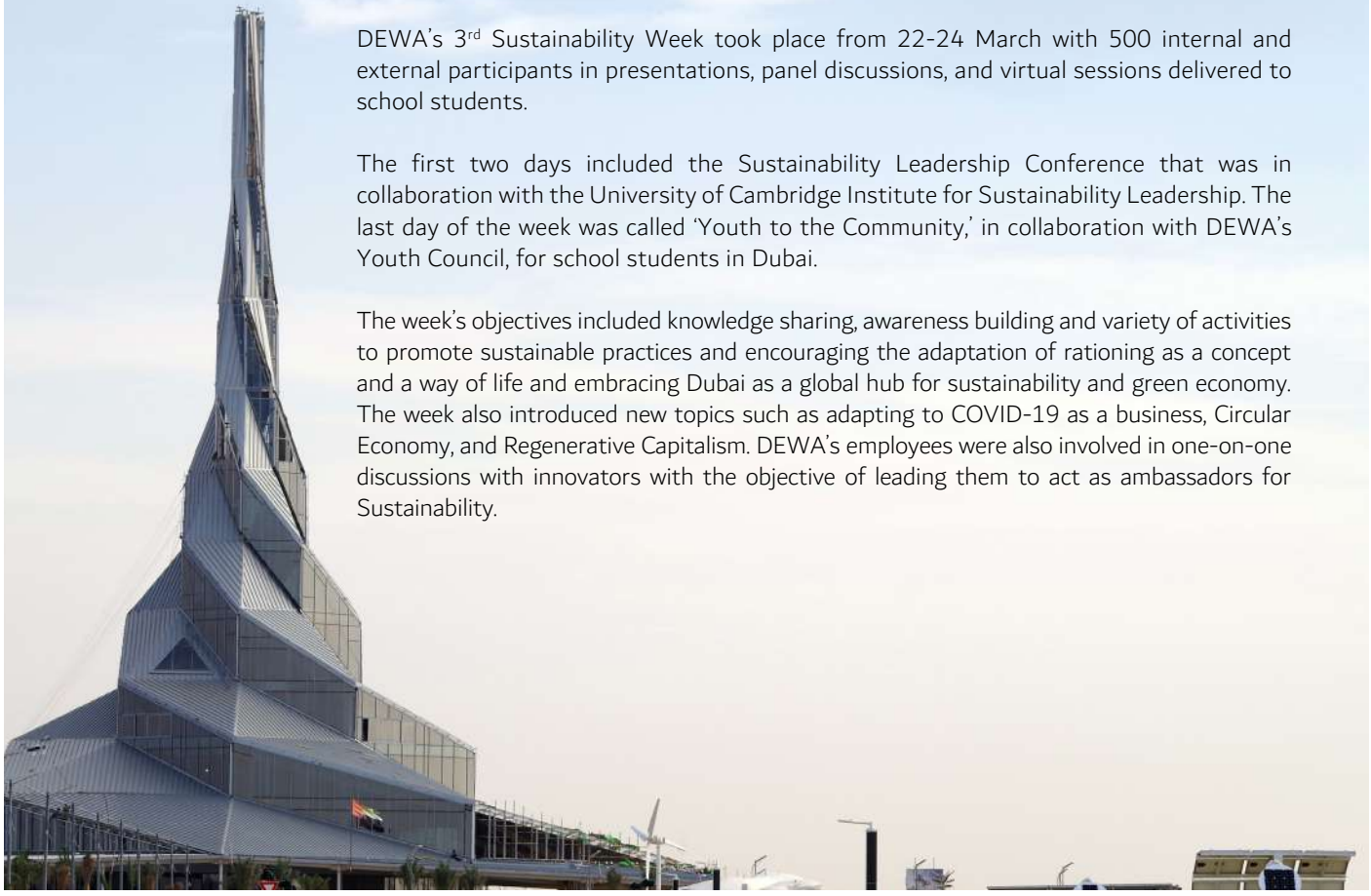
Results Of Stakeholder Sustainability Satisfaction Survey 2021

The following rates shows stakeholders happiness with DEWA acting as pioneer for sustainable solutions

Society (Community)	Society (Business)	Government	Suppliers	Customers	Partners	Providers of Capital/Investors
93.31%	96.04%	91.93%	89.08%	85.22%	92.10%	92.47%

1. DEWA meets my expectations regarding sustainability. **Employees: 91%**
2. I am aware of DEWA's sustainability initiatives and their role in contributing to the achievement of the 17 UN Sustainable Development Goals: **90%**
3. How sustainability performance of an organisation affects your investment decisions for Providers of Capital & Investors: **50%**
4. I am ready to supply more sustainable and environmentally products/ and services to DEWA Suppliers: **90.02%**

DEWA's Virtual Sustainability Week 2021



DEWA's 3rd Sustainability Week took place from 22-24 March with 500 internal and external participants in presentations, panel discussions, and virtual sessions delivered to school students.

The first two days included the Sustainability Leadership Conference that was in collaboration with the University of Cambridge Institute for Sustainability Leadership. The last day of the week was called 'Youth to the Community,' in collaboration with DEWA's Youth Council, for school students in Dubai.

The week's objectives included knowledge sharing, awareness building and variety of activities to promote sustainable practices and encouraging the adaptation of rationing as a concept and a way of life and embracing Dubai as a global hub for sustainability and green economy. The week also introduced new topics such as adapting to COVID-19 as a business, Circular Economy, and Regenerative Capitalism. DEWA's employees were also involved in one-on-one discussions with innovators with the objective of leading them to act as ambassadors for Sustainability.

DEWA and Expo 2020 Dubai

DEWA was an official Sustainable Energy Partner of Expo 2020 Dubai, which took place from 1 October, 2021 to 31 March, 2022. DEWA built the main electricity & water infrastructure to support this mega event. To achieve that, DEWA invested AED 4.26 billion towards the development of power and water infrastructure at the Expo site. It assigned working groups to implement and oversee the various pillars within the partnership. The DEWA working groups were Infrastructure & Delivery, Sustainability, Strategy & Innovation, Human Capital, Commercial & Marketing, Thought Leadership & Content, Operational & Emergency Readiness, and One-Stop-Shop. The projects and working areas included the following:

Three 132/11 kilovolt (kV) substations: Called Sustainability, Mobility and Opportunity after the three sub-themes of Expo 2020, these substations have 45 kilometres (km) of high-voltage (132kV) cables. As part of its commitment towards sustainability, solar panels were installed in the 3 sub-stations and they were built as per LEED standards.

Green Charging Stations: DEWA installed 15 Green Charging Stations at each of the district parking areas to serve electric vehicles for exhibition visitors. In addition, DEWA installed 2 charging stations at the Expo site office.

Risk and Emergency Planning: DEWA has an integrated system for risk management and organisational resilience that includes crisis management and business continuity. It obtained accreditation from international organisations compatible with the most appropriate best practices. From this standpoint, DEWA had the necessary capabilities to deal with emergency situations at Expo, by providing relevant support at site before, during and after Expo 2020. During the event time, DEWA electricity and water teams were stationed at the Expo site for the duration of the event for quick emergency response. This ensured that it could immediately respond to any water and energy-related situations. DEWA also provided the highest levels of service to customers and participants at the exhibition, with a number of mobile power generators allocated to facilitate the connection to the Expo 2020's power grid in anticipation of any emergency.

Organised the Solar Decathlon Middle East 2020 in collaboration with Expo 2020 Dubai. (further information is available in the Community Chapter of this report).

Expo One-Stop-Shop: The Expo One-Stop-Shop (OSS) objective was to deliver committed services to participants in coordination with the Expo department and external stakeholders. The aspiration & commitment of OSS is to enhance the experience for participants throughout their journey, from participation initiation, design, pre-construction, construction, billing to decommissioning. This included DEWA OSS Committee who engaged with 150 plus employees, 291 participants and 38 DEWA representatives on-site as well as 239 coordination meetings and events. Support channels constituted website and smart app support module, and a smart communication platform to reach 59+ employees with dedicated email & hotlines.

Volunteers: DEWA encouraged its employees to volunteer for Expo 2020 Dubai. It designed and delivered a Volunteering Diploma with Amity University in 2019 for a number of its employees and lead volunteers as part of preparing them for the Expo. During the 6 months of the event, 177 employees from DEWA volunteered for the event with a total of 46,560 volunteering hours. Two employees from DEWA, Eisa Al Zarouni and Rizwan Hussain, received the Expo Golden Hearts Award nominated by visitors of the event for their exceptional service as Expo volunteers.

DEWA Pavilion

DEWA had a dedicated pavilion at Expo 2020 Dubai. The pavilion displayed DEWA's mega projects for sustainable development, which included: the Mohammed Bin Rashid Al Maktoum Solar Park, the Green Hydrogen Project, the Space-D Project, Al Sheraa Building, Hatta Hydroelectric Plant, Dubai Mountain Peak & Hatta Sustainable Waterfalls projects, Digital DEWA and the World Green Economy Organization.

The pavilion, being in a global platform like the EXPO, was an opportunity to showcase the latest developments and achievements of Dubai in the field of energy and water to an international audience. It was also an opportunity for DEWA to engage with society and youth and raise public awareness about its efforts in sustainable development. The pavilion had more than 1 million visitors during the 6 months of the event which included 74 visits from official delegations, and 17,763 students from 617 school visits.

155 employees volunteered to be guides for the pavilion, for a duration of one month each. 6 online trainings and 12 rehearsal sessions were conducted to prepare them for the role. The employee volunteers received positive feedback and special recognition from international delegations and heads of UAE local authorities for their knowledge of DEWA's projects and hospitality.

Case Study

Space-D

- In January 2021, His Highness Sheikh Mohammed bin Rashid Al Maktoum launched DEWA's space programme, Space-D, an initiative that aims to build DEWA's capabilities and train Emirati professionals to use space technologies to enhance its electricity and water networks. The programme will take advantage of Fourth Industrial Revolution technologies such as Internet of Things (IoT), Artificial Intelligence (AI), and blockchain to exchange information with the help of satellite communications and earth observation technologies.
- Space-D project is part of the Space-D programme to build and operate a constellation of nanosatellites. DEWA have already launched one 3U satellite in January 2022, and another 6U nanosatellite is scheduled to be launched in Q1 2023. The aim of the Space-D programme is to research and develop solutions on the use and applications of space and satellite technology to improve the electric and water networks operations, planning and maintenance activities.
- With the use of network data and image technology collected by satellites, and the development of data processing, storage, dissemination and machine learning and AI data analytics, Space-D can provide data and insights to the network's operation, maintenance, asset management and planning teams to complement their traditional operational and planning systems and tools. The R&D Centre has already developed use cases. These developed solutions are expected to provide benefits in cost savings, improving operations, network reliability, and efficiency for DEWA's service units.

Chapter 03

Energy

100% Clean energy generation capacity targeted by 2050

Cumulative efficiency improvement of 37.63%, equivalent to 73 million tons of CO_2 emission reduction between 2007 and 2021

13,417 MW Generation capacity for 2021

3.3% Electricity line losses for 2021, 25% improvement since 2006 (EU12)

Management Approach

(GRI 103-1, 103-2, 103-3)

The reliability of electricity supply across the Emirate of Dubai is a primary mandate within DEWA's management approach. To ensure its reliability, DEWA is heavily investing in new technologies, applying international best practices and continuously improving its power generation, transmission and distribution facilities.

DEWA implements innovative solutions to improve supply-side efficiency, reduce transmission and distribution losses and diversify energy sources to support sustainable economic growth with minimum impact on the environment and natural resources.

Corporate Risk & Resilience

In 2020, DEWA launched PAS 60518:2020, Enterprise Risk & Resilience Management Guide for Utilities, as the first, dedicated risk and resilience specification of its kind for the global utility sector. PAS 60518:2020 is supported by relevant local and international risk and resilience standard requirements including ISO 22301:2019; Security and Resilience, Business Continuity Management Systems (for which DEWA was the first organisation in MENA to be certified in), ISO 31000:2018; Risk Management and BS 11200:2014; Crisis Management Guidance and good practice; all three of which are fully embedded across the organisation and assessed for compliance annually.

DEWA's Enterprise Risk Management (ERM) Framework ensures that the risks throughout the organisation are managed consistently. The Framework defines the management policies, procedures, and practices to be applied to the risk management tasks of identifying, analysing, evaluating, treating, and continuing to monitor risk. Regular monitoring, review and reporting of risks is an important component of the ERM Framework, as it ensures new risks and changes to existing risks are identified and managed, and that risk treatment plans are developed and implemented. Under the guidance of the Group Risk & Resilience Committee, DEWA has identified four Corporate (Tier 1) level risks for which mitigation strategies are on track and reported quarterly.

ERM is intrinsic to, and an essential component of several ISO related management systems and standards including (but not limited to) Integrated Management System which includes Quality, OH&S and Environment Management Systems, and Asset Management. On the Asset Management side, DEWA has incorporated risk management by analysing the risks related to identifying critical assets across the organisation. DEWA has also established a definition and evaluation criteria for determining critical assets which is updated periodically to reflect changes to the assets managed by DEWA. Asset risk and treatment registers are prepared based on asset risk assessments conducted for all critical assets in D, E, G, H, K, L & M stations, in line with the ERM Framework.

Business Continuity Management

DEWA's Business Continuity Management System (ISO 22301:2019) includes the development of a detailed Business Impact Analysis (BIA) covering critical divisional processes. The BIA includes the identification of critical business impacts to support the development of the Business Continuity Plan (BCP). In the context of the Generation Division, the BCP includes the following scenarios that could affect its ability to generate power and produce water:

1. Cyber Security Incident (Generation ICS)
2. Loss of Natural Gas Supply
3. Fire or explosion in fuel and hydrogen systems
4. Oil spill
5. Red tide
6. Loss of station due to power system or equipment failure, with a partial loss of power generation being greater than the Power Reserve of 500 MW
7. Loss of station due to desalination system or equipment failure, with a partial loss of water production being more significant than the Water Reserve of 50 MIGD

This is to ensure continuous delivery of power & water at a minimum acceptable level during and following any kind of crises, incident or business disruption.

Mock Drills, Exercising and Testing

DEWA undertakes division-wide mock drill exercises based on risk-based crisis situations including cyber-attacks, fire, accidents due to human error and equipment malfunction, to ensure preparedness and adaptation for handling such emergent and crisis situations. Following each mock drill, a comprehensive review is undertaken to indicate the outline of the crisis, response of the various teams, observations, and effectiveness for handling the emergency and scope for improvements, where necessary.

DEWA plays a major role in participating in Dubai and national level exercises with external authorities such as Dubai Police, Civil Defense, NCEMA, RTA, Dubai Municipality, and others, ensuring the highest level of preparedness in joint responses against a variety of emergencies and crises.

Crisis Management

DEWA's Generation Division has identified two main plans based on a study developed that accurately measures the impact on power and water production facilities that could lead to partial or total loss of power generation and water production, and contingency plans for a range of scenarios have been developed.

The lists below summarise the Crisis Management and Contingency Plans:

Crisis Management Plans

01 Partial / Total Loss of Power Generation

02 Partial / Total Loss of Water Production, wherein demand cannot be met with well-field assistance / modified operation

03 Fire / Explosion in Liquid Fuel Storage Tanks, NG pipeline due to breakage/leakage or Hydrogen Cooled Generator System

Contingency Plans

01 Blackout Contingency Plan

02 Water Contingency Plan

03 Fire Contingency Plan

04 Oil Spill Contingency Plan

05 Red Tide Contingency Plan

Legal & Regulatory Requirements

DEWA developed an Integrated Management System Procedure (IMSP04) to identify its legal and regulatory requirements. In line with DEWA's (IMSP10) procedure, compliance with the identified legal and regulatory requirements is also periodically verified and confirmed by all plants and departments.

Power Generation (GRI 103-1, 103-2, 103-3, EU10)

DEWA is an exclusive provider of electricity and potable water services according to the highest standards to the people of Dubai, and ensuring the availability, reliability, and security of these services remains its key priority.

Through its facilities such as power stations, desalination plants, transmission networks, and distribution networks, DEWA ensures the uninterrupted supply of services to all its customers.

In 2021, the total gross power generation in DEWA was 50,202,424 MWh. The primary source of fuel for the power generation and water desalination operation is the natural gas purchased from DUSUP, which runs the Emirate's gas importation and distribution infrastructure.

Net Energy Output Broken Down by Primary Energy Sources (EU2)

Source of Energy		2019	2020	2021
Natural Gas	Generation (MWh)	45,184,886	42,025,853	43,025,633
	% of total generation	96.75	91.94	85.70
Diesel Fuel Oil	Generation (MWh)	42,779	20,547	35,495
	% of total generation	0.09	0.04	0.07
Medium Fuel Oil	Generation (MWh)	42	0.4	17
	% of total generation	0.0001	0.000001	0.00003
Solar Energy	Generation (MWh)	1,476,015	2,855,142	3,460,046
	% of total generation	3.16	6.25	6.89
Hassyan Power Plant	Generation (MWh)	-	810,069	3,681,232*
	% of total generation	-	1.77	7.33
Total Gross Generation (MWh)		**46,703,722**	**45,711,611**	**50,202,424**

*Net electricity sent to DEWA network

DEWA's two main sources of electricity generation are natural gas and solar energy. Diesel fuel oil and medium fuel oil are backup fuels used only during an emergency in case of an interruption of gas supply. The consumption during the year is due to testing and commissioning purposes. As the electricity demand increases every year, the electricity generated from DEWA's main energy sources increases. From 2020 to 2021, the total gross generation increased from 45,711,611MWh to 50,202,424 MWh.

In line with the Dubai Clean Energy Strategy 2050 and Dubai Net Zero Carbon Emissions 2050, DEWA continues shifting towards solar energy. In comparison with 2020, the total percentage of electricity generation from natural gas dropped by 6.24%. Furthermore, the total percentage of electricity generation from solar energy increased from 0.01% in 2013 to 6.89% in 2021.

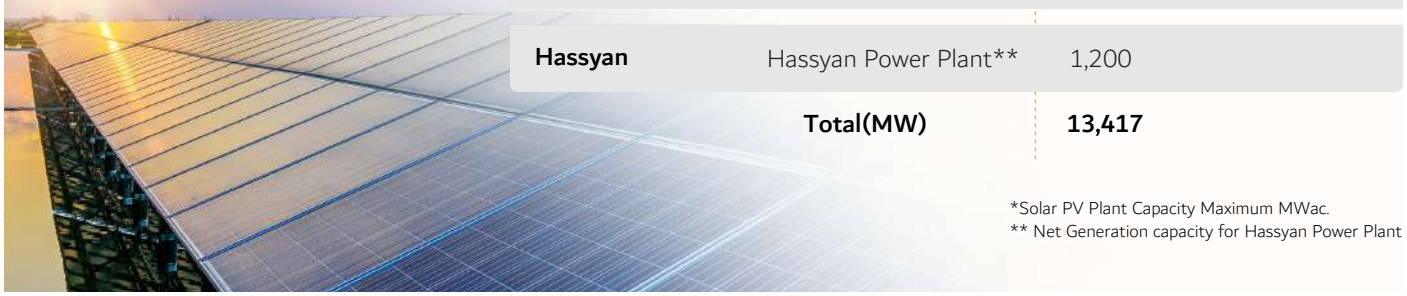
Installed Capacity (EU1)

DEWA is transforming Dubai into a global hub for clean energy and a green economy by ensuring that 100% of Dubai's total power capacity will be obtained from clean sources by 2050 within Dubai's energy diversification mix. In 1992, the installed electricity capacity was about 1,402 MW, and water was 60 MIGD. In 2021, DEWA's installed capacity increased to 13,417 MW of electricity and 490 MIGD water production capacity.

DEWA Installed Capacity

Site	Station	Installed Power Capacity (MW) at 50 °C & 30% R.H
Jebel Ali, Dubai	D	1,026.99
	E	615.50
	G	818
	K	948
	L	2,400.6
	M	2,885
Aweer, Dubai	H	1,995.86
Seih Al Dahal, Dubai	Mohammed Bin Rashid Al Maktoum Solar Park*	1,527
Hassyan	Hassyan Power Plant**	1,200
	Total(MW)	**13,417**

*Solar PV Plant Capacity Maximum MWac.
** Net Generation capacity for Hassyan Power Plant



H-Station

DEWA has completed 87.11% of the 829 MW (gross power output) 4th phase of the H-Station power plant in Al Aweer with investments totalling AED 1.1 billion. This phase will increase the station's total capacity to 2,825 MW under climate conditions of up to 50 degrees Celsius and is expected to be operational by Quarter 2 of 2023. The station consists of a simple/open cycle three gas turbines "F"-Class (SGT5-4000F) from Siemens and is equipped with the latest systems & technologies to reduce emissions to the minimum. The turbines will be fueled entirely with natural gas. The project includes installing sub-devices and equipment from major international companies such as natural gas compressors from Germany's MAN. It also consists of a natural gas treatment station from the Dutch company Petrogas.

Diversifying the Energy Mix

Diversifying the energy mix is beneficial in various aspects, including:

- Reducing dependency on a single natural energy source
- Ensuring energy security

This diversification is in line with the Dubai Clean Energy Strategy 2050 and Dubai Net Zero Emission Strategy 2050, which aims to provide 100% of Dubai's energy production capacity from clean energy sources by 2050.

Dubai Clean Energy Strategy 2050

Dubai aims to lower its carbon footprint and become a global centre for clean energy and a green economy by 2050 (the targets are clean energy of 7% by 2020, 25% by 2030, and 100% by 2050).

Due to DEWA's major renewable energy projects, such as Mohammed bin Rashid Al Maktoum Solar Park, Dubai's energy mix has exceeded the Dubai Clean Energy Strategy 2050 by 11.38%, with 13,417 MW of electricity total installed capacity. About 1,527 MW is the installed production capacity from photovoltaic solar panels at the solar park.

Mohammed Bin Rashid Al Maktoum Solar Park

The Mohammed Bin Rashid Al Maktoum Solar Park is the largest single-site solar park in the world. The project aligns with the Dubai Clean Energy Strategy 2050 and Dubai Net Zero Emission Strategy 2050. The solar park located in Seih Al Dahal in Dubai has a planned capacity of 5,000 MW by 2030. The project's completion will reduce 6.5 million tons of Carbon Dioxide emissions annually.

The solar park currently consists of 5 phases:

First Phase
13MW
photovoltaic
commissioned in **2013**

Second Phase
200MW
photovoltaic
commissioned in **2017**

Third Phase
800MW
photovoltaic
commissioned in **2020**

Fourth Phase
950MW
(700MW CSP and 250MW PV)
commissioned in stages from Q4

Fifth Phase
900MW
commissioned in stages from Q3 of **2021**

Future Phase
5,000MW by **2030**

The Mohammed Bin Rashid Al Maktoum Solar Park

	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
Status	Completed	Completed	Completed	In progress	In progress
Date of completion	2013	2017	2020	2024	2023
Energy Generated (Installed Capacity)	13 MW	200 MW	800 MW	950 MW	900 MW
Technologies	Photovoltaic	Photovoltaic	Photovoltaic	Photovoltaic & CSP	Photovoltaic
# Solar Cells used	153,000	2.3 million	3 million	791,560	2.7 million
Emission Reduction	15,000 tons	214,000 tons	1.055 million tons	1.6 million tons	1.18 million tons
Investment	AED 82.7 Million	AED 1.2 Billion	AED 3.47 Billion	AED 15.78 Billion	AED 2.07 Billion (Estimated)
Land Used	0.3 sq.km	4.5 sq.km	18 sq.km	44 sq.km	10.17 sq.km
Partners & Shares	DEWA (100%)	DEWA (51%) ACWA Power (49%)	DEWA (60%) Masdar (24%) EDF Energies Nouvelles (16%)	DEWA (51%) ACWA Power (25%) Silk Road Fund (24%)	DEWA (60%) ACWA Power (40%)
End Users (Residents)	Pilot Project	50,000	240,000	320,000	270,000

Power Transmission & Distribution

(GRI 103-1, 103-2, 103-3, EU12, EU4)

The reliability of the electrical connections is one of DEWA's main tasks and targets. Therefore, DEWA invests heavily in building the transmission and distribution substation to ensure delivering the electricity to the end-user safely at highest level of reliability. In 2021, DEWA achieved a score of 100% on the transmission system availability.

Total Number of Transmission Substations

Type	2017	2018	2019	2020	2021
132 kV	236	258	285	307	319
400 kV	21	21	22	23	25

Despite the COVID-19 pandemic, DEWA provided electricity and water services according to the highest standards of availability, reliability, and efficiency. In 2021, DEWA commissioned 16 new Transmission Substations which include 14 nos. 132kV Substations (also, 2 nos. old 132kV Substations were decommissioned) with a conversion capacity of 2,100 megavolt amperes (MVA) and two 400kV Substations with a conversion capacity of 4,000 MVA at the Mohammed bin Rashid Al Maktoum Solar Park and Al Quoz 2 with a total cost around AED 2.9 billion.

Substations were connected with the main transmission network. DEWA installed 218 kilometres of 400kV overhead transmission lines and 86 kilometres of 132 kV ground cables. In 2021, the total value of DEWA's investments in existing and completed electricity transmission projects reached AED 9.5 billion. This included AED 2 billion for key 400 kV transmission projects and AED 7.5 billion for 132 kV projects.

To complete the substations in 2021, it required more than 25 million safe working hours using the latest global technologies while ensuring the highest safety and security standards.

Total Number of Distribution Substations

Type	2017	2018	2019	2020	2021
33 kV	104	101	93	85	81
11-6.6 kV	33,763	35,500	38,240	40,588	41,814

DEWA continuously focuses on improving and maintaining the best operational efficiency of its Transmission and Distribution (T&D) network. In 2021, DEWA reduced its electricity line losses to 3.3%, thanks to its Intelligent Metering System and Smart Grid. The Smart Grid provides advanced features and includes automated decision-making and interoperability across the entire electricity and water network.

DEWA commissioned 1403 new 11-6.6kV power distribution stations across Dubai in 2021. This is part of its efforts to provide a state-of-the-art infrastructure that keeps pace with growing demand and meets customer needs. It has an advanced digital infrastructure that uses the latest Fourth Industrial Revolution technologies and disruptive technologies such as Artificial Intelligence, Unmanned Aerial Vehicles, Energy Storage, Blockchain, and the Internet of Things.

The total number of 33kV medium voltage distribution stations currently in service has reached 81 stations, while the number of 11kV medium voltage stations has reached 41,814.

For more information about DEWA Smart Grid kindly view DEWA Smart Grid Report 2021 at:

https://www.dewa.gov.ae/en/about-us/strategic-initiatives/smart-grid

Length of Transmission and Distribution Lines, 2021 (EU4)

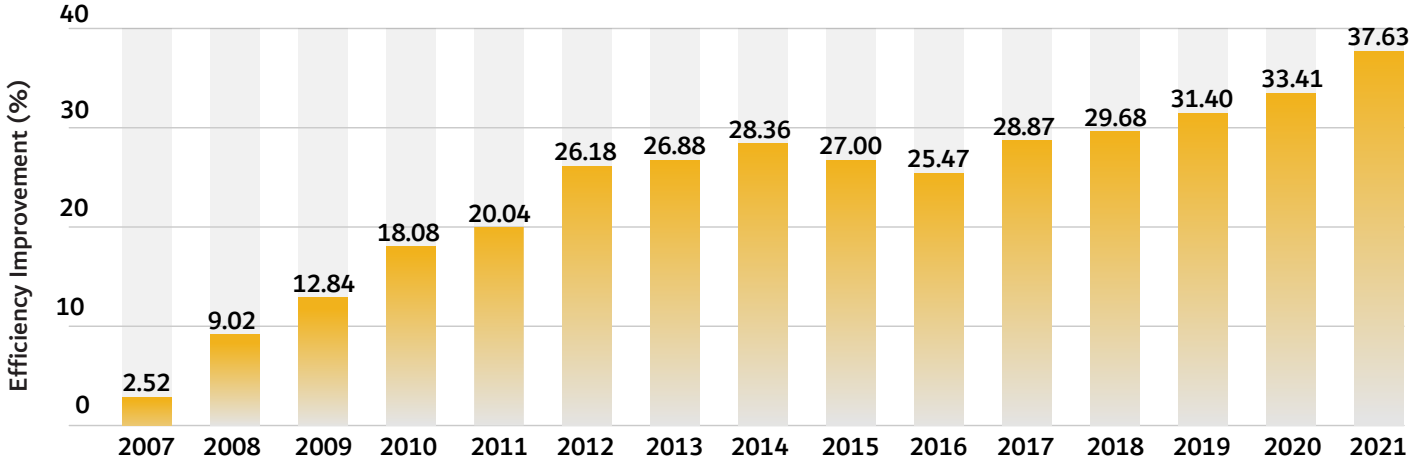
	Type	2017	2018	2019	2020	2021
Overhead lines (Km)	132	413	402	402	402	369
	400	1,125	1,125	1,164	1,168	1,386
	33 kV	113	112	111.88	104.33	100.1
	6.6-11 kV	643.69	628	616.02	608.26	606.4
Underground lines (Km)	132	1,867	2,016	2,146	2,249	2,335
	400	23	24	24	24	25
	33 kV	2,075	2,076	2,142	2,119.49	2,108
	6.6-11 kV	30,917	32,482	33,940	34,475	35,001.31

Supply Side (GRI 103-1, 103-2, 103-3, EU11)

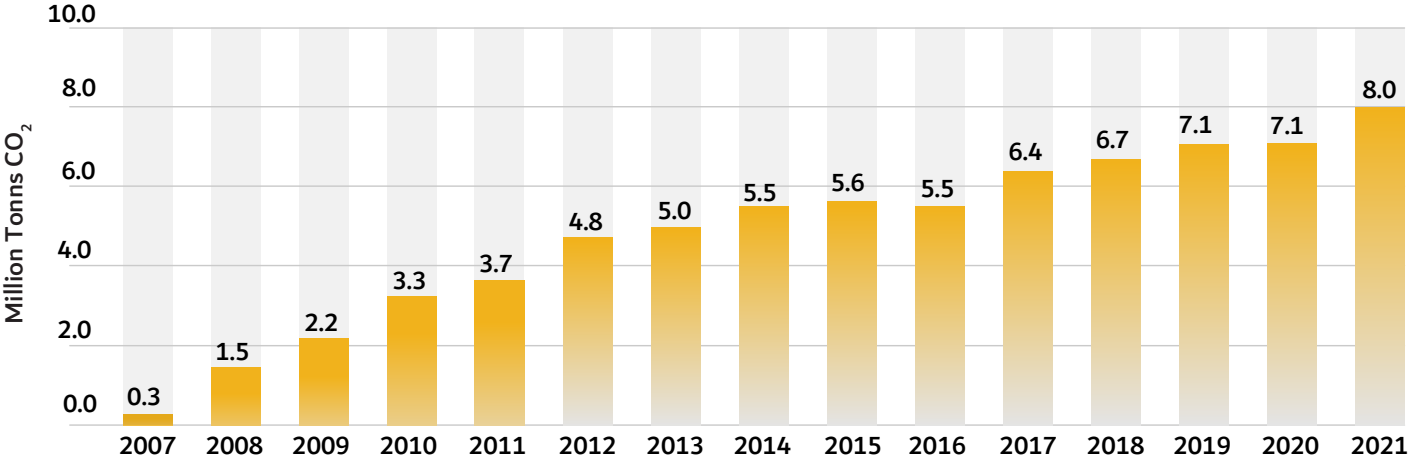
DEWA produces electricity and water through cogeneration technology from the steam produced by the Heat Recovery Steam Generators (HRSGs)/ Waste Heat Recovery Boilers (WHRBs). The steam is used to generate additional free power through a backpressure steam turbine or Condensing Extraction Steam Turbine and produces water by multi-stage flash.

DEWA consistently invests in efficiency improvements. From 2007 to 2021, DEWA achieved a 37.63% of improvement in the cumulative efficiency compared to 2006 efficiency, which is equivalent to 73 million tons of CO_2 emission reduction.

Efficiency Gains From Improvement in Gross Heat Rate 2007-2021 Compared to 2006



Carbon reduction (Million Tons CO_2) Due to Efficiency Improvements Compared to 2006



The main factors behind achieving DEWA's efficiency improvement are the following:

1 **Optimum Power Plant Design:** To achieve a minimised cost and the highest efficiency of the plant's lifecycle, the optimum power and water production design would be in a hybrid system where water production is shared between several technologies, including multi-stage flashing desalination and reverse osmosis.

2 **Power Augmentation:** In the summer months, with ambient temperatures reaching above 45 degrees C, gas turbine generation capacity typically drops by around 20%, which reduces power output and efficiency, and increases emission intensity and costs. The recovery of this power loss and efficiency is possible using several cost-effective and proven power augmentation options. By using these technologies, DEWA has cost-effectively increased capacity by over 720 MW by 2021 compared to 2006 and improved efficiency in the process, which reduced its emission intensity.

3 **Innovative Upgrades for Gas Turbines:** After installing any gas turbine, DEWA continuously follows up with the original equipment manufacturers regarding any new proven and cost-effective technologies and upgrades that have become available during the lifecycle of the gas turbine, to increase capacity as well as improve efficiency and reliability.

4 **Optimised Operation:** During low demand, some electricity generation units are shut down to avoid running inefficiently at low load levels.

5 **Optimum Outage Planning:** DEWA uses a management tool that coordinates all maintenance outage requests to optimise outages and meet demand with the highest efficiency and minimum fuel cost.

Demand Side Management

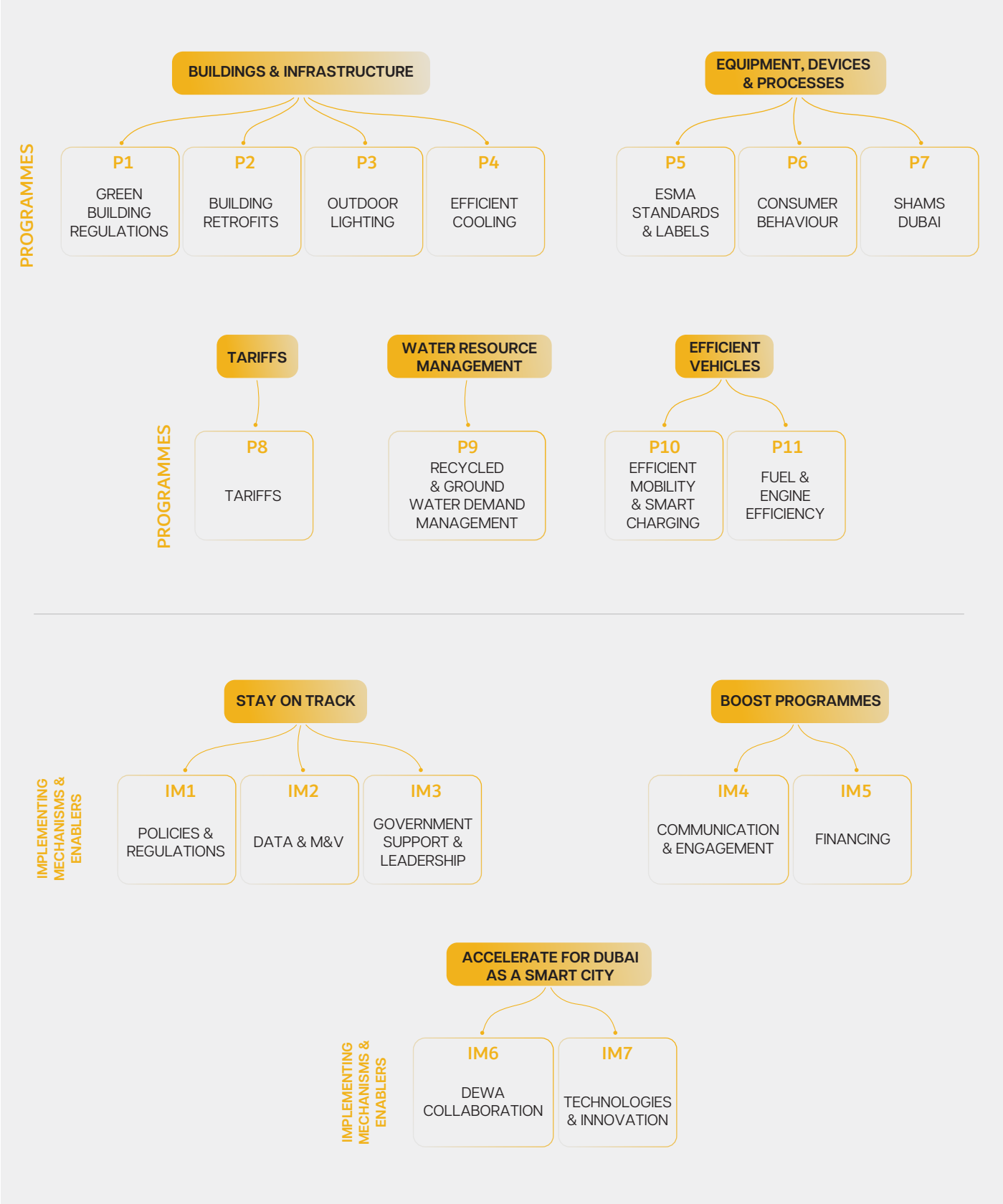
(GRI 103-1, 103-2, 103-3)

In 2013, the Dubai Supreme Council of Energy (DSCE) developed Dubai's Demand Side Management (DSM) Strategy. The main target of the DSM Strategy is to make Dubai a leader in the efficient management of electricity and water demand with an ambitious target of 30% reduction in energy and water consumption by 2030.

In 2020, the DSM strategy was updated by the Dubai Supreme Council of Energy to ensure and speed up achieving the strategy's target. The updated DSM strategy 2030 includes 11 main programmes, the first 9 programmes targets electricity and water savings:

1. Green building regulations
2. Building retrofits
3. Outdoor lighting
4. Efficient cooling
5. ESMA standards & labels
6. Consumer behaviour
7. Shams Dubai
8. Tariffs
9. Recycled & ground water demand management
10. Efficient mobility & smart charging
11. Fuel & engine efficiency

Nine programmes are related to DEWA's scope of work, core business and two programmes target emission reduction within the transportation sector. In addition, the DSM strategy includes seven implementation mechanisms that endorse and accelerate the transition of Dubai into a smart city and a leader in the efficient management of electricity and water demand.



Each programme is under the responsibility of a member entity of the DSCE to implement under the management of the DSM Project Management Office (PMO) – Taqati and supervision of DSCE. DEWA is the owner and responsible for the Consumer behavior programme (partially initiated "Consumer Behavior Analytics"), Shams Dubai Programme and Tariff rates. In 2021, DEWA's DSM programmes achieved savings as shown below:

Savings from DEWA's DSM Programmes

	2019		2020		2021	
Programme	**Electricity**	**Water**	**Electricity**	**Water**	**Electricity**	**Water**
Consumer behaviour	Programme started in 2020	Programme started in 2020	40 GWh	241 MIG	43 GWh	202 MIG
Shams Dubai	136 GWh	–	311 GWh	–	459 GWh	–
Tariffs	1,137 GWh	2,165 MIG	1,076 GWh	2,051 MIG	1,177 GWh	2,084 MIG

In 2021, energy demand in Dubai reached 50,401 gigawatt-hours (including DRRG) compared to 45,712 gigawatt-hours in 2020, which reflected a 10% increase in energy demand compared to 2020.

DEWA's electricity generation capacity increased to 13,417 megawatts and desalinated water production capacity to 490 million imperial gallons per day. DEWA is considered one of the best and most reputable utilities globally, surpassing top utilities in Europe and the USA in terms of efficiency and reliability. In 2021, DEWA reduced losses in electricity transmission and distribution networks at 3.3%, compared to around 6-7% recorded in Europe and the USA. Water network losses decreased to 5.3%, compared to around 15% in North America.

In 2021, DEWA recorded 1.43 minutes in Customer Minutes Lost (CML) compared to the target set of 1.6 minutes compared to around 15 minutes recorded by leading electricity companies in the European Union.

Shams Dubai

Shams Dubai is DEWA's distributed renewable generation programme and supports the vision of HH Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, to make Dubai the smartest and happiest city in the world. The initiative implements Executive Council Resolution number 46 of 2014, issued by HH Sheikh Hamdan bin Mohammed bin Rashid Al Maktoum, Crown Prince of Dubai and Chairman of the Dubai Executive Council, to regulate the connection of solar energy to Dubai's power grid. Shams Dubai encourages households and building owners to install photovoltaic panels to generate electricity and connect them to DEWA's grid. The electricity is used on-site and the surplus is exported to DEWA's grid under a net metering scheme. Shams Dubai supports the Dubai Demand Side Management Strategy, Dubai Clean Energy Strategy 2050, Dubai Carbon Abatement Strategy and the Dubai Net Zero Emission Strategy 2050. DEWA is leading by example on Shams Dubai, having installed solar panels on rooftops and carports at several DEWA buildings, sponsored many solar photovoltaic projects for other Dubai Government agencies, and installed solar systems for more than 5,000 Dubai and Hatta residents.

Shams Dubai Indicator Progress	**2017**	**2018**	**2019**	**2020**	**2021**
Connected Capacity at Year End, (MW)	22.8	71.4	165.2	261.9	398.8
Est. Annual Generation, (GWh)*	17.8	61.4	142.3	311.4	459
Grid Emission Factor, (tCO2/MWh)	0.4333	0.4258	0.4178	0.4041	0.4010
Est. Annual Emission Savings, (000 t of CO2)**	7.7	26.2	60.6	125.9	184.1

*Assumes 15% capacity factor on time-weighted installed capacity

**Based on Grid Emission factor. Actual savings likely higher as solar typically displaces daytime generation only

Hab-Reeh

DEWA has launched the 'Hab-Reeh' interactive platform for self-assessment of photovoltaic solar-system designs, under the Shams Dubai initiative.

Hab-Reeh (a term in Emirati dialect that denotes speed, efficiency and positivity) helps consultants and contractors evaluate Shams Dubai project designs to ensure they are compatible with DEWA's standards before submission. The interactive platform provides unlimited design options for the user in addition to a database of approved solar energy equipment that includes over 150 types from international manufacturers to help them choose the most suitable equipment and tools.

DEWA organised 23 training courses where 770 engineers and technicians received certificates as Enrolled Electrical & Solar PV Consultants & Contractors. This resulted in 130 companies being enrolled to work in the design and implementation of Shams Dubai projects. These include 116 contractors and 14 consultants.

Tariffs Programme

The main idea of pricing the electricity and water services is to induce energy-efficient behaviour and encourage customers to smartly utilise the service provided on a daily basis. The main objectives of the Tariffs Programme are the following:

1. To adjust the tariff structure to be cost-effective
2. Promote energy efficiency
3. Encourage customers to reduce their consumption

The current tariff rate is set in an inclining slab structure, where the rate increases by moving the consumers to a higher tariff slab according to their consumption. The Tariff Rates Program started the DSM Strategy 2030, as the major contributor to savings in the first year of Dubai's DSM strategy implementation.

Green Hydrogen Plant

Green hydrogen is a promising and environmentally friendly source of energy. It is usually produced by water electrolysis. Green hydrogen represents one of the pillars of a sustainable future that depends on accelerating the transition to carbon neutrality to support a green economy. Its objectives are to develop the green mobility sector, and reduce carbon emissions from large-scale industries that produce large amounts of carbon, such as trucks, trains, ships and airplanes, as well as generate electricity.

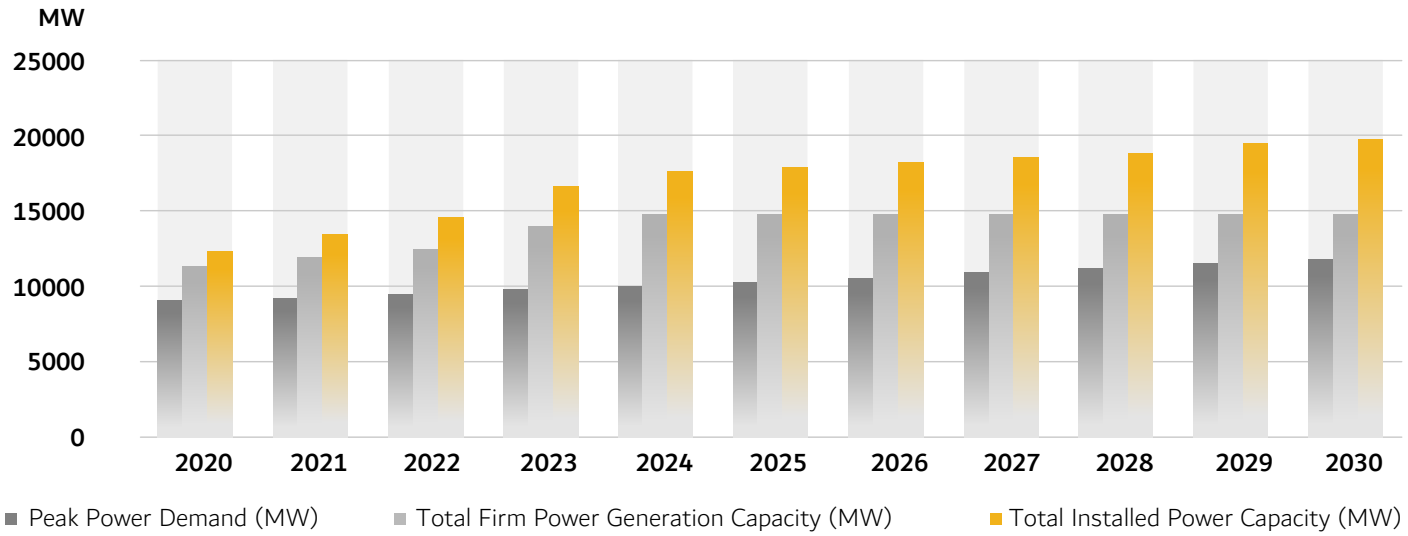
The Green Hydrogen project, implemented by DEWA, at the Mohammed bin Rashid Al Maktoum Solar Park, is the first of its kind in the Middle East and North Africa to produce hydrogen using solar power. The pilot plant, spread over 10,000 square meters was designed and built to accommodate future applications and testing facilities for various kinds of hydrogen use, including energy generation and transportation. The project has been designed according to the highest safety standards and aligns with DEWA's standards and international laws.

DEWA, in partnership with Emirates National Oil Company (ENOC), is doing a feasibility study on building a hydrogen fueling station. This will help achieve the objectives of the Dubai Green Mobility Strategy 2030 to encourage the use of sustainable transportation, as well as the UAE's Hydrogen Vehicles System, which aims to develop the hydrogen economy in the UAE, and open up local markets to hydrogen vehicles.

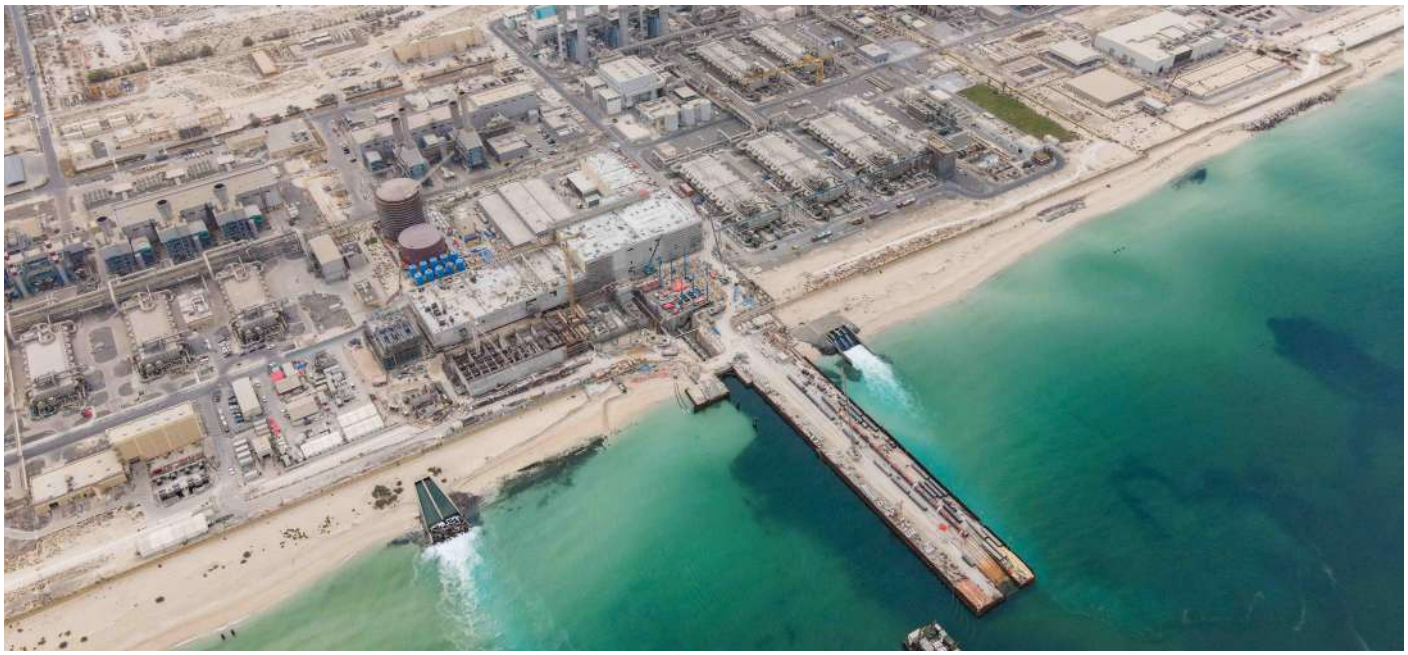
Meeting Future Demand

To ensure meeting future demand, DEWA has developed and forecast the power demand for electricity and water for the short, medium and long-term demand, along with capacity plans up to 2030. Using recognised international practices and state of the art tools considering demographic and econometric growth, DEWA updates the demand forecasts annually. In addition, DEWA captures the effect of future uncertainties through scenario planning. This ensures that DEWA maintains its world-class level of reliability, efficiency and safety and optimises its resources. In 2021, DEWA updated the Peak Power Demand and Planned Capacity to the following:

Peak Power Demand and Planned Capacity Additions (2020 - 2030)



DEWA updates its capacity plans annually to meet Dubai's power and water demands, maintaining a reserve margin of a minimum 15% for water and 25% for power. Capacity plans set the course for the technical planning of future infrastructure expansions of electricity and water production, transmission and distribution systems. The plan takes into consideration Dubai's future developments in commercial and industrial sectors and major future events such, as the projected growth of power and water demand associated with increases in population and economic growth. The plans include expansion in power generation and water desalination capacity up to 2030 over the next ten years.



Case Study

Tesla's lithium-ion energy storage solution Mohammed bin Rashid Al Maktoum Solar Park

As part of its efforts to diversify the energy mix and enhance energy storage technologies, DEWA has inaugurated a pilot project for energy storage at the Mohammed bin Rashid Al Maktoum Solar Park using Tesla's lithium-ion battery solution. The project has a power capacity of 1.21 MW and an energy capacity of 8.61 MWh with a life span of up to 10 years.

DEWA's strategy is guided by the vision and directives of His Highness Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, to ensure energy security and sustainability.

DEWA has an integrated vision to achieve these directives with three main pillars:

1. To produce more clean energy, especially solar energy, under the Dubai Clean Energy Strategy 2050 and Dubai's Net Zero Carbon Emission 2050 Strategy.
2. To decouple the desalination process from the production of electricity and desalinate water using a combination of clean energy sources and waste heat.
3. Disrupting the role of utilities using Fourth Industrial Revolution technologies, such as AI, UAVs, energy storage, blockchain, and the Internet of Things (IoT).

The energy storage project using Tesla's lithium-ion battery solution at the Solar Park aims to diversify the energy mix and enhance energy storage technologies. The pilot project will evaluate the technical and economic capabilities of this technology within the operational framework of electricity systems in solar photovoltaic power plants. It also tests the role of this technology in the integration between clean energy and energy storage to achieve maximum efficiency and reliability.

The lithium-ion energy storage pilot project is the second battery energy storage pilot project by DEWA at the solar park. The first project was implemented in collaboration with AMPLEX–NGK to install and test a Sodium Sulphur (NaS) energy solution with a power capacity of 1.2 MW and an energy capacity of 7.5 MWh. This was the first utility-scale energy storage pilot project in the region.

Chapter 04

Water

100% of desalinated water will be produced by a mix of clean energy that uses both renewable energy and waste heat by 2030.

In 2021, DEWA installed capacity from its desalination plants was 490 MIGD.

DEWA installed 960,364 smart water meters by the end of 2021.

Management Approach (GRI 103-1, 103-2, 103-3)

Water is one of the vital elements in sustaining life. Access to safe, clean running water is a key indicator of the advancement of cities around the world. Being the only electricity and water utility in Dubai means DEWA is responsible for keeping up with the Emirate's growth and fulfilling the vision of the leadership. DEWA works not just to keep up to Dubai's needs, but also to stay one step ahead and anticipate its future needs for water to sustainably provide the required capacity for the foreseeable future.

DEWA is working towards an ambitious strategy. By 2030, 100% of desalinated water will be produced by a mix of clean energy that uses both renewable energy and waste heat.

DEWA uses the latest Supervisory Control and Data Acquisition (SCADA) systems, smart monitoring, and control and automation systems to guarantee the continuous availability of water services with the highest international standards. Much work is required to develop, operate, maintain and expand the water network, given extreme weather conditions and the fast pace of development in Dubai. DEWA is known for its impeccable pipeline management team that conducts regular maintenance to avoid breakages as much as possible. In addition to a robust asset management system which includes a comprehensive maintenance programme, DEWA's water system has a reliable SCADA system to monitor and control the water network remotely. The system monitors the water network at

key locations, and triggers alarms of pressure and flow readings, which indicate anomalies. This enables skilled operators to locate and isolate breakages quickly, to minimise disruption to supply and prevent water losses.The potable water produced, transmitted and distributed by DEWA is in compliance with the requirements of the latest WHO potable water guidelines.

Water Risk Management

Water Risk Management in DEWA is supporting the long-term national level direction to ensure sustainable access to water during both normal and emergency conditions. Water Risk Management is in line with the UAE's vision of water security, prosperity, sustainability, and the long-term availability of water.

Typically, risks related to water systems include water production and water network risks. The water production risks include events that may affect the normal operation of the water production sources (Desalination Plants), and these range from a complete shutdown of the plants due to unforeseen natural events such as red tide, or unexpected events such as oil spills in the Arab Gulf, to the necessary shutdown of individual desalination plants for any reason either planned or unplanned. The water network risks include events affecting key assets in the system such as pipelines and pumping station failures.

DEWA has invested significant resources to develop emergency and contingency strategies to support its risk management strategy. This includes the development of comprehensive contingency plans for alternative water sources, a generous water desalination reserve margin, enhancement of water storage (Aquifer Storage and Recovery, interconnection with neighbouring Emirates water systems), and enhanced network reliability through connectivity and flexibility.

In addition, DEWA works closely with local and federal stakeholders and authorities to ensure the long-term availability of water for the UAE's citizens and residents for generations to come.

DEWA Jebel Ali Power Station Potable Water Specifications

Sl. No.	Particulars Of Analysis			WHO Guideline Value(Max)	DEWA-JAPS	
					Updated Specification	Typical Figure
1	pH value	at 25°C		6.5 ~ 8.5	7.9 - 8.5	8.36
2	Conductivity	at 25°C	µS/cm	-	200 - 900	373.1
3	Total Dissolved Solids		mg/L	1000	100 - 450	205.2
4	Chlorine Dioxide	as ClO_2	mg/L	-	0.40 - 0.50	0.46
5	Turbidity		NTU	-	< 5.0	0.9
6	M-Alkalinity	as $CaCO_3$	mg/L	-	40 - 60	49.8
7	Carbonate	as $CaCO_3$	mg/L	-	0 - 10	0.2
8	Bicarbonate	as HCO_3	mg/L	-	30 - 75	60.5
9	Total Hardness	as $CaCO_3$	mg/L	500	40 - 120	59.5
10	Calcium Hardness	as $CaCO_3$	mg/L	-	30 - 65	42.0
11	Calcium	as Ca	mg/L	-	10 - 25	16.8
12	Magnesium	as Mg	mg/L	-	2 - 20	4.2
13	Chloride	as Cl	mg/L	250	25 - 250	73.9
14	Sulphate	as SO_4	mg/L	250	2 - 35	8.4
15	Free Carbon dioxide	as CO_2	mg/L	-	≤ 1.5	0.4
16	Fluoride	as F	mg/L	1.5	≤ 1.5	0.05
17	Chromium	as Cr	mg/L	0.05	< 0.05	<0.0020
18	Iron	as Fe	mg/L	-	≤ 0.3	0.0194
19	Copper	as Cu	mg/L	2	≤ 1.0	0.0700
20	Nickel	as Ni	mg/L	0.07	≤ 0.07	0.0113
21	Cadmium	as Cd	mg/L	0.003	≤ 0.003	<0.0020
22	Mercury	as Hg	mg/L	0.006	≤ 0.006	<0.0020
23	Sodium	as Na	mg/L	200	10 - 200	44.7
24	Lead	as Pb	mg/L	0.01	≤ 0.01	<0.0020
25	Boron	as B	mg/L	2.4	≤ 2.4	0.1091
26	Cyanide	as CN	mg/L	-	≤ 0.07	<0.005
27	Selenium	as Se	mg/L	0.04	≤ 0.04	<0.0020
28	Arsenic	as As	mg/L	0.01	≤ 0.01	<0.0020
29	Manganese	as Mn	mg/L	-	≤ 0.4	0.0034
30	Molybdenum	as Mo	mg/L	-	≤ 0.07	<0.0020
31	Antimony	as Sb	mg/L	0.02	≤ 0.02	<0.0020
32	Barium	as Ba	mg/L	1.3	≤ 0.7	<0.0020
33	Uranium	as U	mg/L	0.03	≤ 0.03	<0.0020
34	Nitrate	as NO_3	mg/L	50	≤ 50	0.05
35	Nitrite	as NO_2	mg/L	3	≤ 3	<0.01
36	Bromate	as BrO_3	mg/L	0.01	≤ 0.01	<0.0002
37	Chlorite	as ClO_2	mg/L	0.7	≤ 0.7	0.2961
38	Chlorate	as ClO_3	mg/L	0.7	≤ 0.7	0.1504
39	TTHMs (Concentration ratio)			1	≤ 1.0	0.0986
a)	Chloroform	as $CHCl_3$	mg/L	0.3	≤ 0.3	<0.001
b)	Bromoform	as $CHBr_3$	mg/L	0.1	≤ 0.1	0.010
c)	Dibromochloro methane	as $CHBr_2Cl$	mg/L	0.1	≤ 0.1	0.001
d)	Bromodichloro methane	as $CHBrCl_2$	mg/L	0.06	≤ 0.06	0.001
40	Dissolved hydrocarbons		mg/L	-	< 0.01 (*)	<0.01
41	Total Coliform Bacteria	Present/absent		-	Absent	Absent
42	Escherichia Coli Bacteria	Present/absent		-	Absent	Absent
43	Saturated pH			-	7.8 ~ 8.5	8.25
44	Saturation Index			-	Positive	Positive

Remarks:

(*) The taste and smell threshold value varies widely according to product and it is 0.0005 ppm (mg/L) for hydrocarbons and distillate should be dumped if it is having smell or taste of oil.

- DEWA JAPS typical figure is the average of individual station averages during the year 2021.
- WHO guideline values is based on W.H.O drinking water guidelines values 4th dition with Addendum 1 of 2017.

Sustainability of Water Production (GRI 303-1, 303-3, 303-5)

As Dubai's sole provider of efficient electricity and water, DEWA is committed to keeping up with the fast growth of the city.

Its desalinated water production has reached 490 million imperial gallons per day (MIGD), with the commissioning of a new Sea Water Reverse Osmosis (SWRO) plant at Jebel Ali, which has a production capacity of 40 MIGD and investments worth AED 897 million.

In line with DEWA's decoupling strategy of power generation and water desalination, all future expansions in water production will be based on SWRO technology using renewable energy.

By the end of 2021, the number of water customer accounts has reached 960,032 compared to 666,006 accounts by the end of 2016. This is a considerable increase of 44%.

The table below shows the Installed Capacity and total water produced between 2016 to 2021 (Million imperial gallons):

Year	Installed Capacity (MIGD)	Total Water Production (Million Imperial Gallons)
2016	470	114,587
2017	470	116,720
2018	470	120,880
2019	470	123,090
2020	470	121,006
2021	490	126,147

In 2021, DEWA's installed capacity was 490 MIGD. The peak daily desalinated water demand of 396.361 MIG was recorded on 28 June, 2021, an increase of 2.38% growth compared to 2020. The average daily desalinated water demand in 2021 was 352.346 MIGD compared to 343.402 MIGD in 2020, which is an increase of 2.60%. The peak monthly average desalinated water demand of 379.962 MIGD occurred in September 2021, an increase of 0.56% compared to 2020.

Desalinated Water Demand Growth

Description	2020	2021	Growth (%)
The peak daily desalinated water demand (MIGD)	387.155	396.361	2.38
The average daily desalinated water demand (MIGD)	343.402	352.346	2.60
The peak monthly average desalinated water demand (MIGD)	377.855	379.962	0.56

The installed capacity from underground wells, which is maintained exclusively for emergency purposes, was approximately 35.00 MIGD (total production of 559.274 MIG).

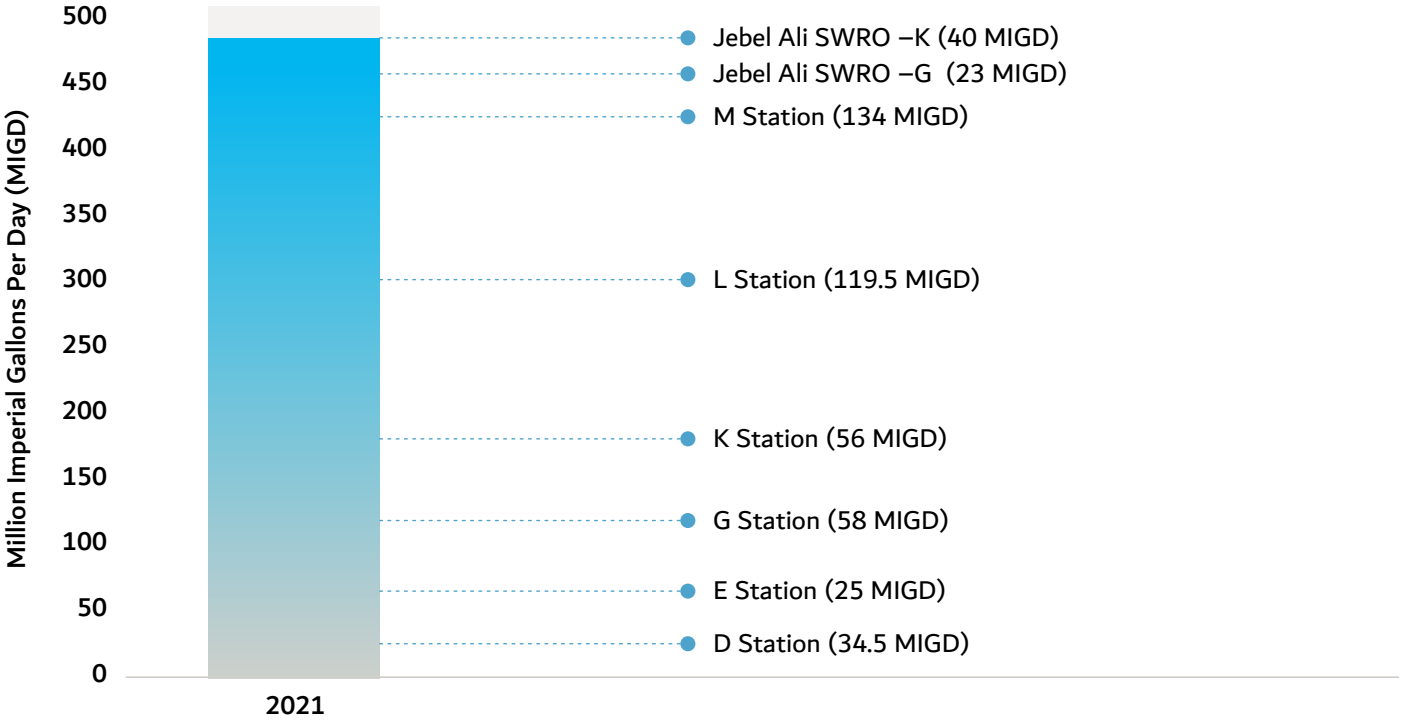
By 2021, the daily production from wells was approximately 1.55 MIGD from groundwater. This is to maintain the wells in an operational state for use in an emergency. The groundwater production is monitored through meters installed on each well.

In Hatta, ground well water is mainly used as feed for Hatta's Reverse Osmosis plant, which being a secondary source of potable water, compensates in meeting local demand partially during contingencies.

In 2021, total RO production was 0.081 MIG, comparatively 0.306 MIG lesser than in 2020 where total RO production was 0.387 MIG. This slight decrease in total RO production in 2021 is due to reduced unplanned shutdowns compared with 2020. Hatta RO, apart from a weekly test run, is operated mainly during unplanned shutdowns when incoming water stream from the Dubai mainline is interrupted, and there is a need to meet local demand.

The total amount of water withdrawn through DEWA water wells is 559.274 MIG (approximately 2117.082 megalitres). This is considered 'Other Water' since the average Total Dissolved Solids (TDS) for well water is more than 1000 mg/L (i.e. 1286 mg/L precisely).

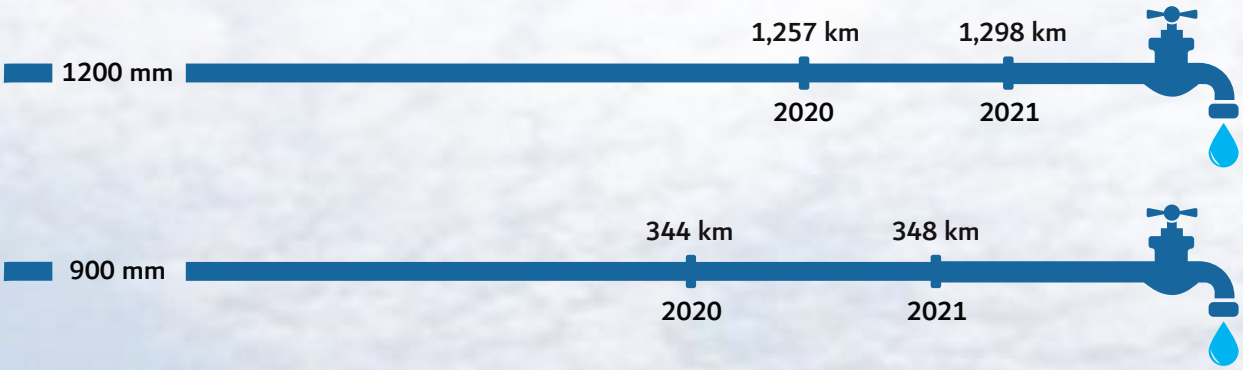
Total Water Production Capacity 2021



DEWA has achieved a new world record for the lowest water levelised tariff of 0.277 USD per cubic metre for its 120 MIGD Hassyan SWRO Plant. The project is DEWA's first Independent Water Producer (IWP) model. DEWA will commission the project in 2024. DEWA has attracted investments of around AED 40 billion using the Independent Power and Water Producer (IPWP) model, which it uses in its key power projects.

Water Data	Unit	2016	2017	2018	2019	2020	2021
Installed capacity of desalination plant	MIGD	470	470	470	470	470	490
Seawater withdrawal	Million cubic metres	3,403	5,741.5	5,919.1	5,872.5	5,767.6	5,767.2
Installed capacity (underground wells)	MIGD	32	32	32	32	32	35
Peak daily desalinated water demand	MIG	356	372	379	387	387	396
Increase in peak daily water demand compared to the previous year	%	2.07%	4.33%	1.97%	2.14%	0.05%	2.38%
Monthly average peak water demand	MIGD	347	362	368	379	378	378.8
Increase in peak monthly average compared to the previous year	%	2.89%	4.39%	1.54%	2.97%	0.17%	0.27%

Length of Transmission Pipelines



Desalination Plants

Desalination technologies

Multi-Stage Flash (MSF) technology
In 2021, DEWA has 43 MSF water desalination units with a total production capacity of 427 MIGD located at the D, E, G, K, L, and M Stations.

Reverse-Osmosis Water desalination technology
At present, DEWA has 2 Seawater Reverse Osmosis (SWRO) plants installed in G & K stations with a capacity of 23 & 40 MIGD respectively. DEWA aims to increase its SWRO production capacity to 303 MIGD by 2030 to reach 42% of its desalination mix from its current share of 13%. The total desalinated water production capacity will reach 730 MIGD in 2030. SWRO desalination units require less energy than MSF. To ensure the sustainability of water desalination, DEWA plans to build RO desalination plants which require 90% less energy than MSF stations.

SWRO based desalination plant in Jebel Ali
In 2021, DEWA commissioned a 40 MIGD SWRO desalination plant at Jebel Ali Power Plant and Desalination Complex to meet the growing demand in a sustainable way and to maintain the reserve criteria. The Complex is the main supplier of Dubai's electricity and water services with a high level of reliability, efficiency, and quality.

According to DEWA's strategy, 100% of desalinated water will be produced by a clean energy mix that uses both renewable energy and waste heat by 2030. This will enable Dubai to exceed the global targets of utilising clean energy for water desalination purposes. Increasing the operational efficiency by decoupling desalination from electricity production will save around AED 13 billion and reduce 44 million tonnes of carbon emissions by 2030.

DEWA adopts smart technologies that allow effective desalination plant control and monitoring, thus enhancing availability and reliability. For the first time, DEWA implemented the Dissolved Air Flotation (DAF) system in the K-Station SWRO plant to pre-treat seawater prior to the desalination process. This enables the desalination process to continue in all conditions, especially during red tide when total suspended solids and turbidity reach high levels. The plant is also equipped with a Dual Media Filter (DMF), which improves the quality of seawater feed, thus increasing the lifetime and performance of the reverse osmosis membranes. the two-pass reverse osmosis system implemented in this project guarantees a high quality of potable water.

The SWRO plant is equipped with recovery devices that have a 96% efficiency rate. They use the high pressure from the first pass/reject brine stream and transfer it to a portion of the feed water stream to the first pass inlet. This significantly reduces electricity consumption in the high-pressure pump, thereby increasing the efficiency of the desalination process.

Water Transmission and Distribution

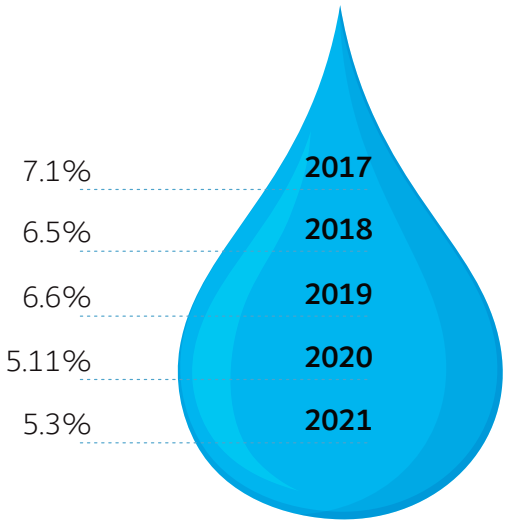
DEWA constantly works to increase the capacity and efficiency of the transmission and distribution networks to provide water services according to the highest standards of availability, reliability, efficiency, and sustainability. DEWA's global achievements confirm the success of its effective and sustainable practices in improving the water network and infrastructure.

DEWA has completed 96.4% of its project to extend its water transmission network by 36.6 kilometres across Dubai, at a total cost of about AED 256 million. The project locations include extensions along Sheikh Mohamed bin Zayed Road and Emirates Road; and connections between the Hassyan Pump Station to Dubai Investments Park and Dubai World Central; from Nakhali Reservoir to Alaweer roundabout alongside the Dubai-Hatta Road and Muhaisnah; and from Margham wells to Dubai Al Ain Road. The project completed in August 2021 has two sections. Section A has 12.52 kilometres of 1200mm-diameter pipes. Section B has 13.97 kilometres of 1200mm pipes and 10.15 kilometres of 600mm pipes for a total of 24.12 kilometres. The project includes the supply, installation, testing, and commissioning of Glass-Reinforced Epoxy (GRE) water pipes (in different diameters), and also precast GRE chambers.

Unaccounted for water
DEWA is one of the top 10% utilities worldwide in decreasing Unaccounted-For Water (UFW). DEWA succeeded in reducing UFW from 7.1% in 2017 to 6.5% in 2018, 6.6% in 2019, and 5.1% in 2020. In 2021, UFW was 5.3%. The definition of UFW is the difference between the water supplied to Dubai and the net billed consumption.

DEWA's strategy is to reduce UFW using smart metering, leak detection, network auditing surveys, pressure management studies, district metering areas (DMA), main pipelines rehabilitation, UFW digital transformation, and automation. To continue and maintain this, DEWA keeps testing and innovating with different manufacturers and recently introduced new technologies such as Smart Ball leak-detection in its transmission pipelines and helium gas leak-detection in its distribution network.

Annual Unaccounted for Water (UFW) As Percentage of Total Water Supplied



Smart Distribution Management System (SDMS)

As a globally leading corporation, DEWA aims to ensure the highest levels of efficiency in the reliability of water supply, as well as transmission and distribution of water. After successfully building and implementing a remote monitoring and control system for the water transmission network, DEWA's Water & Civil division developed an advanced operational technology for real-time monitoring and control of the water distribution network. The Smart Distribution Management System (SDMS) project was initiated with the goal of enhancing the visibility and management of the water distribution network through a centralised real-time system for remote monitoring and control.

In order to achieve its objective, smart water field instruments and RTU (Remote Terminal Unit) were installed at interconnections between the transmission and distribution pipelines and integrated with a water SCADA system and real-time hydraulic management system.

The project is an extension of the water transmission SCADA system. It plays a critical role in the automation, and efficiency enhancement of water operation, reliability of water supply, and customer satisfaction. It also contributes to the strategic KPI for UFW.

Upon maturity, the project is expected to improve fault location, isolation, and service restoration capabilities that result in fewer downtime and shorter outages, lower outages costs, reduced equipment failure, and fewer inconveniences for consumers.

Innovation in Water

HydroNet

DEWA is aligned to the National Innovation Strategy to make the UAE one of the most innovative countries in the world. DEWA is also involved in achieving the Dubai Plan 2021, which intends for the city to become happy, creative, and empowered by people who adopt innovation within its operations.

In line with the above strategies and city-wide plans, DEWA's Water & Civil division is currently building a system that monitors the water network autonomously to improve efficiency, effectiveness and situation awareness of operators, through the integration of artificial intelligence within its current system. DEWA is automating its water transmission and distribution networks. However, these systems still require human operations in real-time for situational awareness.

When part of a live network is no longer stable, operators must manually analyse the circumstances to understand what could be happening within a live network, and then decide on the response based on previous experience or trial and error. This may delay the response and is to be avoided as much as possible to ensure the continuation of clean water transmission and distribution.

The solution presented through this initiative is to create a system that works autonomously, built on Artificial Intelligence. It provides a means of learning the behaviour and monitoring the dynamic network without human intervention by using neural networks. This includes sensors to detect wave propagation and monitor the behaviour of fluids across the water network. This then analyses the steady-state, dynamic state, and transient state, of pipelines within the network. The events that lead to state changes and their propagation can then be detected and monitored by the system. As a result, the solution provides a

cockpit view of the network with geospatial context and pipelines with colour-coding of the different inherent states.

The solution is expected to reduce remote isolation time from minutes to seconds as well as reduce the cost of operation by 3.5 million AED per annum. Other benefits also include the reduction of UFW and decreasing financial losses incorporated with the loss of desalinated water wasted during emergencies. This solution means DEWA can invest in Water & Civil division employees differently for other purposes.

On 7 February 2021, DEWA registered a new patent for its HydroNet project which is being expanded to other regions in 2022. The project won the Silver Team Idea of the Year Award at Ideas America 2020.

Smart Water Meters

DEWA has also started operating the Smart Meters Analysis and Diagnosis Centre, where smart meters are read and monitored remotely every 15 minutes.
As of 31 December 2021, DEWA installed 960,364 smart meters, out of which 938,239 are monitored and read remotely every 15 minutes. This allowed DEWA to improve the availability of meter readings to 99.26%. with 925,514 water meters remotely billed in SAP. The Advanced Metering Infrastructure (AMI) improves meter reading & billing accuracy, customer happiness, and reduces Unaccounted for Water.

The state-of-the-art infrastructure for smart meters helped detect 790,274 water leakages; 17,663 defects; and 7,906 increase load cases in the past three years. This saved customers a total of AED 508 million. The High-Water Usage Alert service, which is part of the Smart Living initiative, helps customers detect leakage in water connections after the meter. The system sends instant notifications to the customer if there is an unusual increase in consumption to check the internal connections and repair any leaks. This reduces waste as well as incurred costs for customers.

Smart meters help customers benefit from the Smart Living initiative launched by DEWA. The initiative has previously received the Hamdan bin Mohammed Program for Government Services Flag. It helps customers monitor their consumption independently, by logging into their DEWA accounts on the website or smart app, checking their data dashboard to monitor consumption, learning more about residential customer tariff slabs, getting conservation tips, and developing their conservation plans.

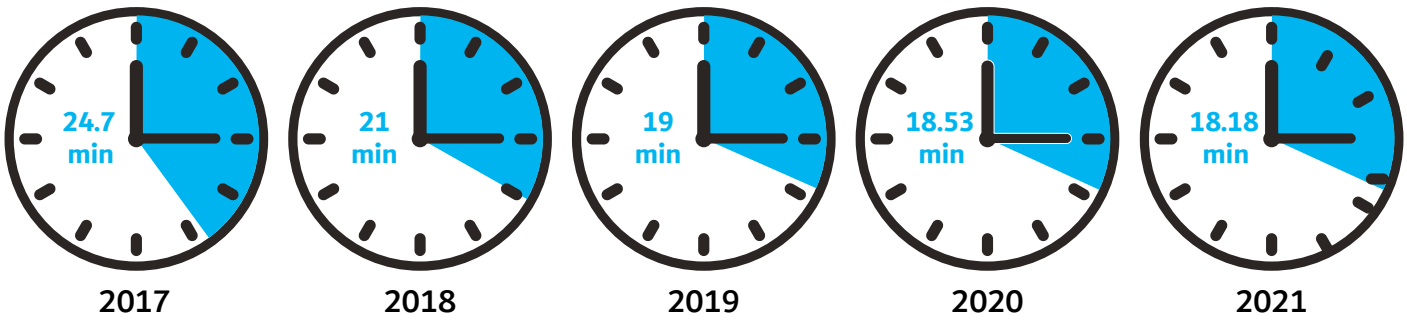
Customers also benefit from the 'My Sustainable Living' programme, which has a positive impact on customers who can compare their consumption with similar homes. Customers can also make use of DEWA Store offers to purchase energy and water-saving devices.

Minimisation of Water Loss

With a considerable number of activities concerning the expansion of the water network, pipeline age and extreme weather conditions, DEWA frequently faces emergencies in the form of pipeline breakages and leakages, which result in huge water losses. Delay in arriving on-site to isolate broken pipeline segments, especially due to the heavy traffic in Dubai, proves difficult. To overcome this challenge, W&C division has built the Supervisory Control and Data Acquisition (SCADA) System, to monitor and control pipelines remotely. The system enables skilled operators to detect and isolate breakages and emergencies instantly by observing changes in pressure and flow transmitter readings.

As a result of adopting the innovative technology of Water SCADA, W&C division has KPIs to observe the return on investment associated with this project. The KPIs enabled DEWA to decrease the response and isolation time in the event of an emergency, as well as measure the percentage of the network that can be isolated remotely.

Average Time for Response + Isolation
(Transmission Breakages)



■ Average Time for Response + Isolation (Minutes)

***Note:** The average combined time for response and isolation of transmission breakages has decreased from 60 minutes in case of manual isolation prior to 2017 to as low as 18.18 in 2021

Waste Water Discharge Management

(GRI 103-1, 103-2, 103-3, 303-1, 303-2; 303-4, 306-1, 306-5)

DEWA is reducing its environmental impact by integrating environmental solutions into its business and operations. DEWA has incorporated a robust wastewater management system within its procedures, which meets the standards and regulations of Dubai Municipality, which is the environmental regulatory body in Dubai. DEWA continues to efficiently manage the wastewater generated within the scope of its operation at Jebel Ali Power and Desalination Stations Complex by following the guidelines from Dubai Municipality to assure that the water discharge quality is up to standards and safe for the surrounding ecosystems.

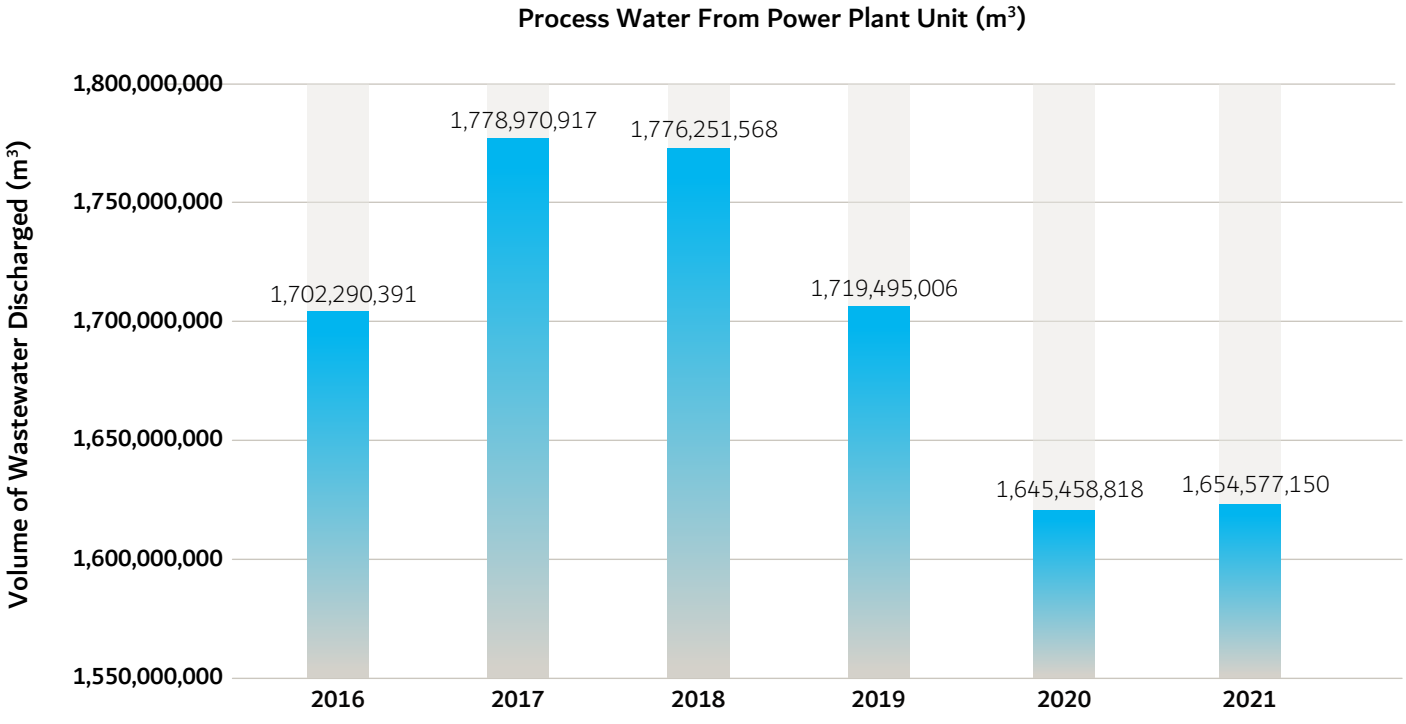
DEWA conducts ecological assessments on a bimonthly basis to assess the phytoplankton, zooplankton, and macrobenthos concentrations four times a year. The assessments are carried out at distances of 0.5 km and 2.0 km away from D, K, and L stations discharge points by specialist environmental service providers.

Water Discharge From Desalination and Wells

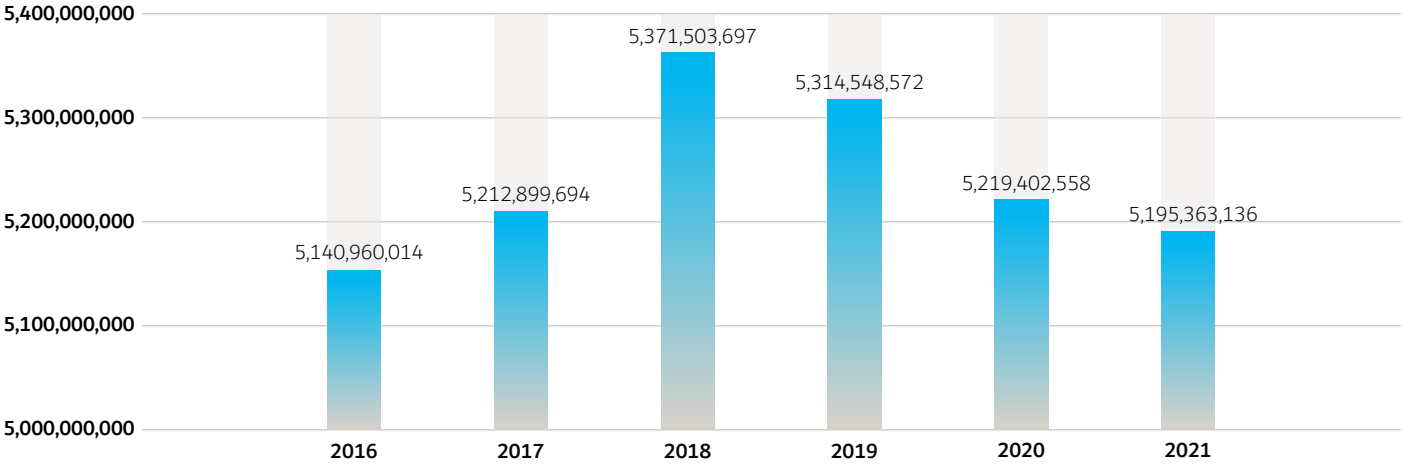
Desalination

In 2021, the total volume of wastewater discharge was 5,195.36 million cubic meters, primarily comprising process wastewater from DEWA's power and desalination plants, which is discharged to the Arabian Gulf, including smaller volumes of effluent from DEWA's water treatment plants (74,831 m^3) and on-site treated sewage effluent (15,813.9 m^3). A total of 95.7% of the recoverable wastewater (process wastewater and treated sewage effluent) generated was re-used in the Jebel Ali Power Station Complex.

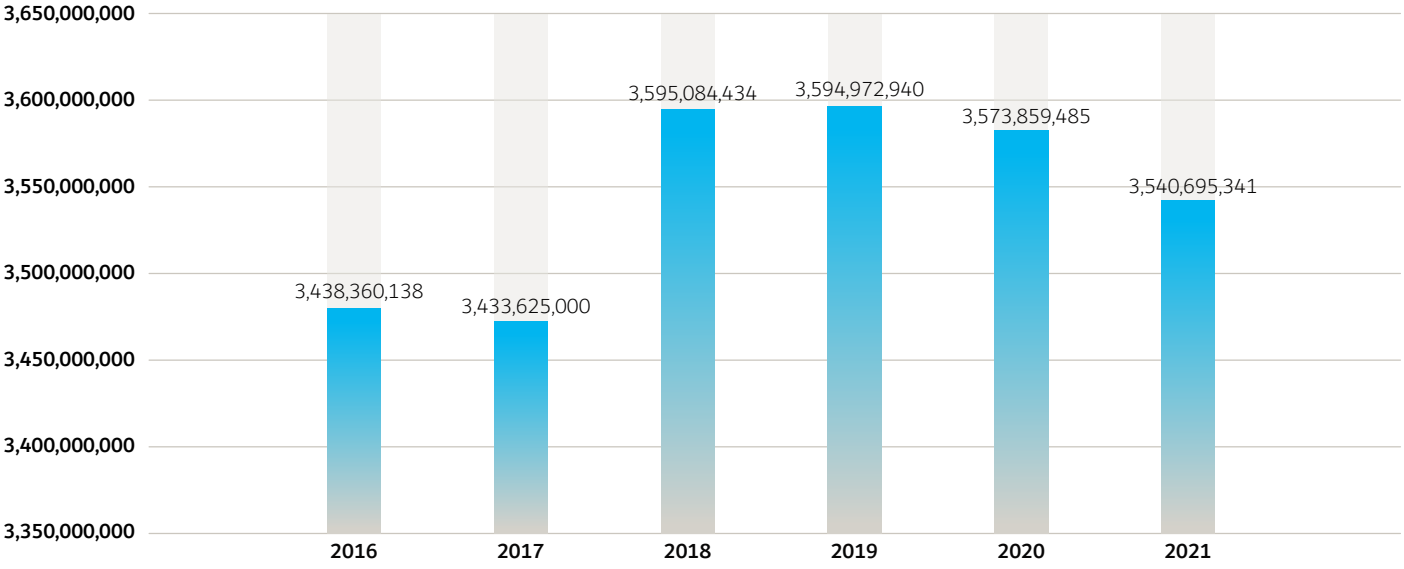
Different Types Of Effluent During 2016-2021



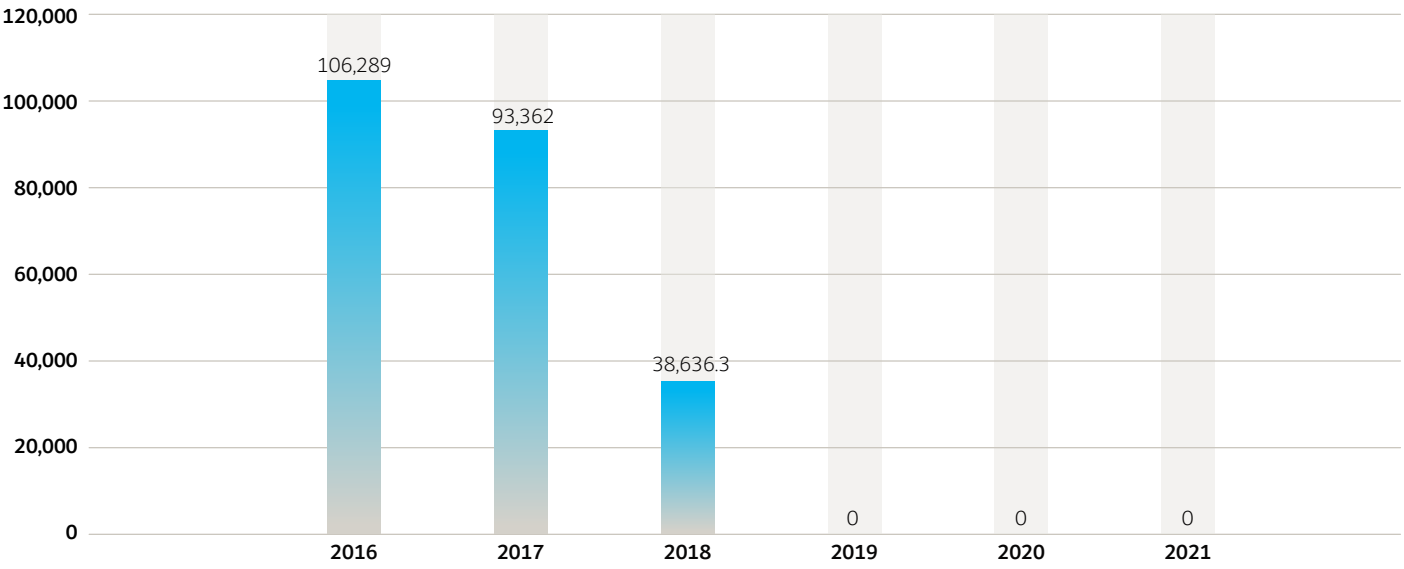
Total Volume of Waste Water Discharge Unit (m³)

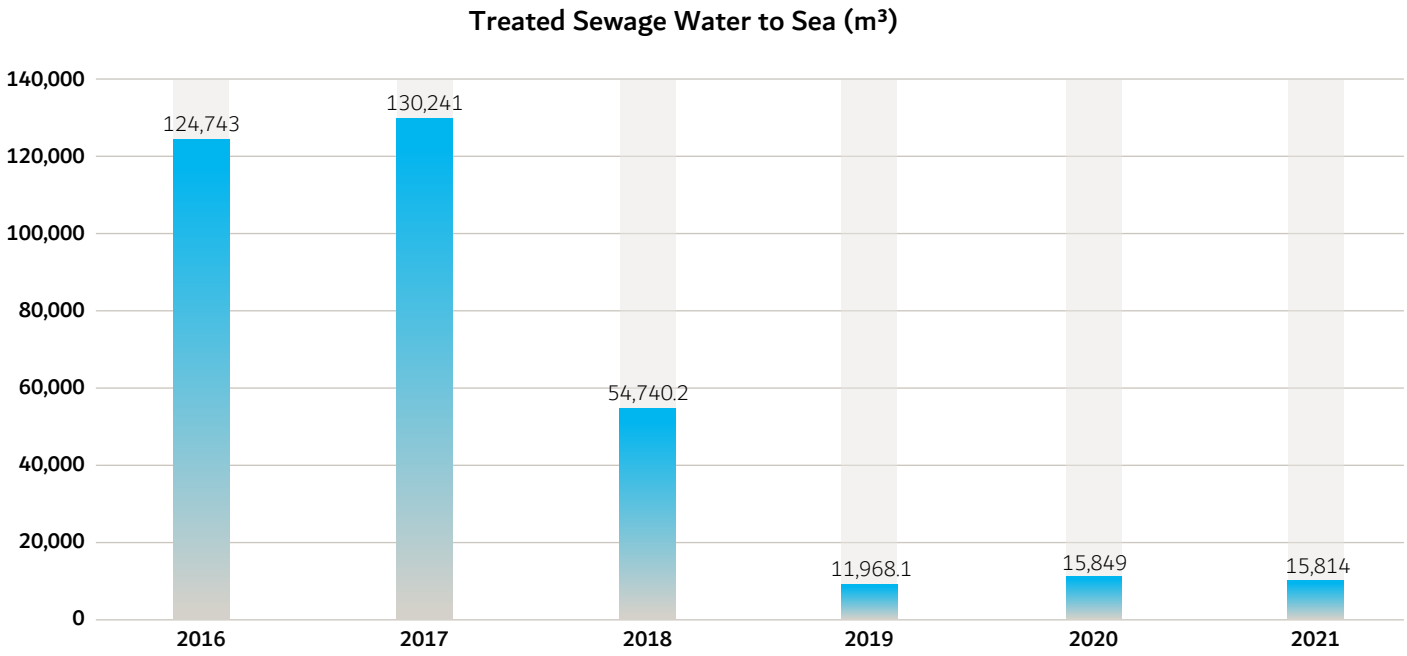


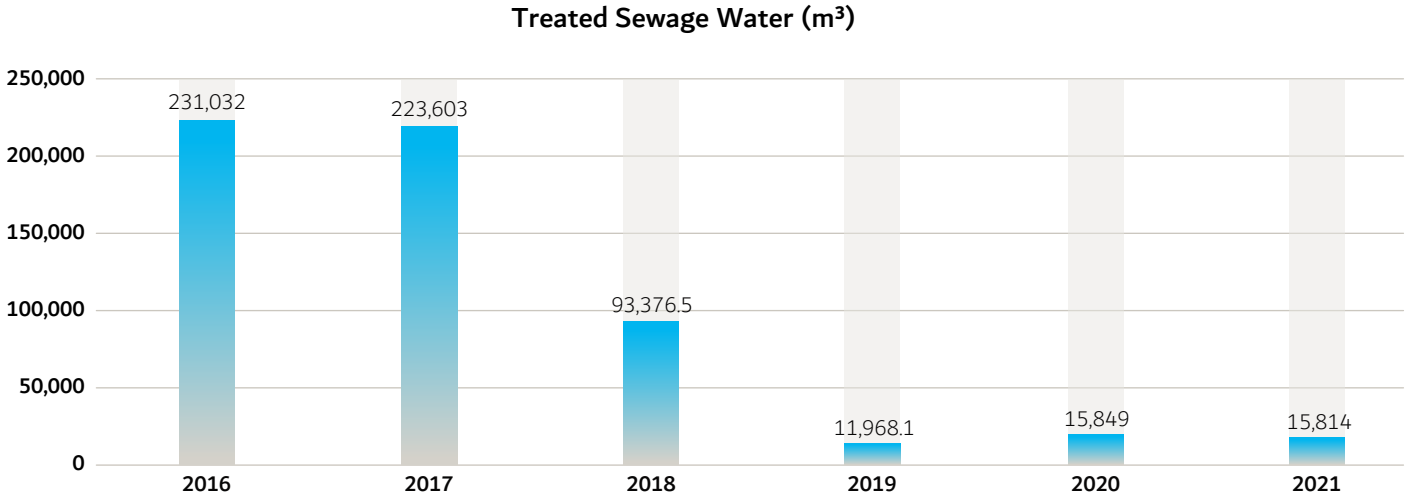
Process Water From Desalination Plant (m³)



Treated Sewage Water to Land (m³)



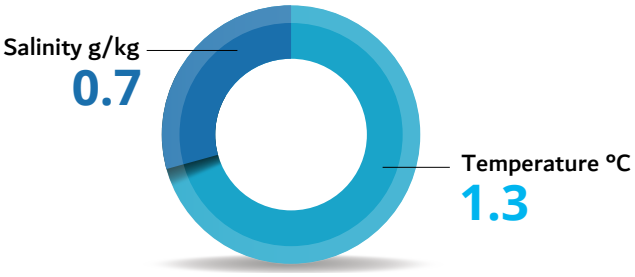




Salinity Difference Between The Seawater At Mixing Zone and Ambient Seawater (g/kg)

Sample	2016	2017	2018	2019	2020	2021
D-I Station	0.5	0.7	0.7	0.7	0.6	0.6
D-II Station	0.8	1	1	0.9	0.6	0.6
E-Station	0.7	0.7	0.5	0.5	0.6	0.6
G-Station	0.7	0.9	1	0.5	0.9	0.7
K-Station	0.4	0.4	0.6	0.5	0.7	0.4
L-Station	0.8	0.7	0.8	0.5	0.4	0.9
M-Station	1	0.7	0.4	0.6	0.7	0.9
Average	0.7	0.7	0.7	0.6	0.7	0.7

The Average of Temperature and Salinity Difference Between Seawater at the Mixing Zone and Ambient Seawater 2021



Wells

In 2021, the total reject water released from Hatta RO Plants was 1.009 MIG (the difference in total amount of well water pumped for RO Units, 1.09 MIG and the permeate production from the RO plant, 0.081 MIG). This reject water is released from RO units and transported through pipelines to UAE local farms in Hatta for irrigation and agriculture. Underground wells should be overseen cautiously so DEWA guarantees that it will, for the most part, be used in a crisis to serve individuals who live in regions where other water systems are unavailable.

Source	Withdrawn	Discharge	Used (Withdrawn - Discharge)
Wells	559.274 MIG	0	559.274
Hatta Wells	7/7 Wells For 1.301 MIG	1.009	0.292
	3/7 Wells for RO 1.09	1.009	0.081

Water Security and Storage (GRI 303-5)

Water security is not only a national security issue for the UAE but also one of the seven strategic sectors of the National Innovation Strategy, and one of the main pillars of the UAE Vision 2021. To face this challenge, DEWA has adopted a set of strategies and policies to increase the efficiency of water use, and an integrated water resource management approach, to ensure sustainability. The three pillars adopted to ensure the sustainability of water production are clean solar power, reverse osmosis, and the Aquifer Storage and Recovery (ASR). This approach consists of using clean solar power for seawater desalination using the latest reverse osmosis technologies. The excess water is stored in groundwater aquifers and pumped back into the water network when needed. This innovative integrated model is a cost-effective, sustainable solution that helps protect the environment and contributes to Dubai's ability and aspirations to shape the future.

All available water resources are considered in an integrated manner using available state-of-the-art technologies. These include surface, ground, desalinated, and recycled water. The ASR project, which is currently under execution, will provide around 6 billion gallons of water strategic storage capacity in aquifers, where water is protected from any external pollution risks, and quality is maintained. The stored water can be recovered when needed to provide the Emirate with a 50 MIGD supply capacity during unforeseen prolonged emergencies, tentatively up to 75 to 90 days. The installed capacity of the underground wells situated in Hatta is approximately 0.35 MIGD and the water from these wells is also reserved for contingencies.

Water Consumption – Change in Water Storage

Year	Total water storage at the beginning of the reporting period (MIG)	Total water storage at the end of the reporting period (MIG)	Change in water storage (MIG)*
2019	622.130	611.788	10.342
2020	611.788	412.436	199.352
2021	412.436	661.600	- 249.164

*As a parameter, water storage is a dynamic value (changes daily). It increases and decreases as per consumption trends, production values and network configuration. In fact, water reservoirs (i.e. float tanks and break tanks) are used to control the hydraulic behaviour rather than for storage purposes.

Case Study

Water Saving

As a sustainability leader in the country and region, DEWA sets a positive example by implementing best standard practices of water-saving within its own premises. In 2021, the total water consumption was 16,965,960 IG for DEWA premises that cover a total area of 101,254 m^2. To constantly monitor and manage the water consumption, DEWA follows the existing KPIs for Water Saving of Retrofitted Buildings, with an annual target of 5%, at its Head Office, Hudaiba Building, Umm Ramool, Wasl building, Burj Nahar building, L-admin building, and G-admin building. DEWA has achieved 436,580 IG of water saving in 2021 through sustainable solutions that include the use of Treated Sewerage Effluent (TSE) water for cooling towers in the new chiller plant in the Head Office, and the installation of water reducers in all taps.

Water-saving results of the retrofitted buildings:

2019	477,316 IG
2020	475,773 IG
2021	436,580 IG

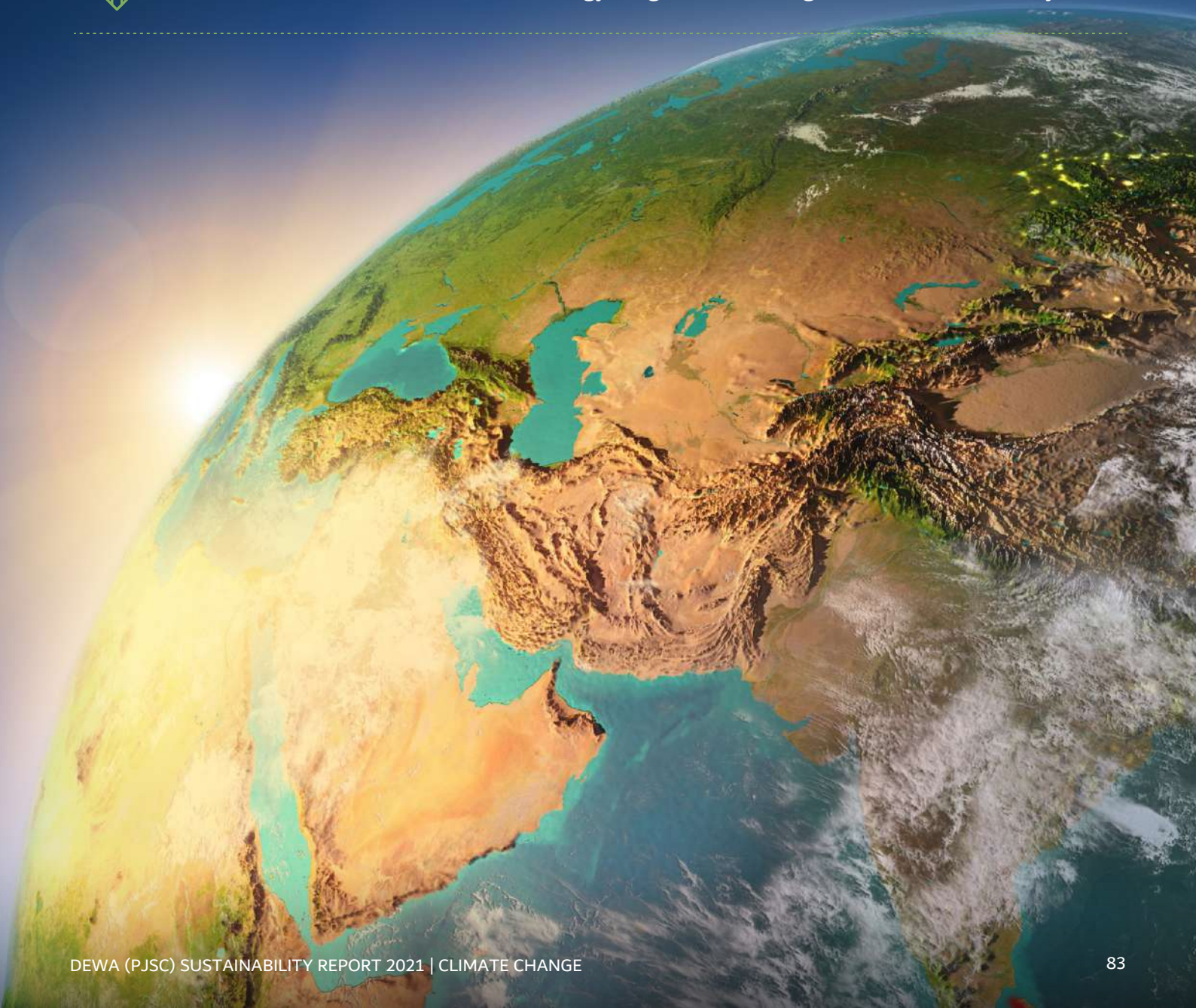
Chapter 05

Climate Change

As of 2021, DEWA has successfully issued 1,011,095 i-RECs for various international and national clients.

In 2021, DEWA's total carbon emissions from Scope 1 were 24.11 $MtCO_2e$ against BAU 31.15 $MtCO_2e$.

Dubai managed to decrease its carbon emissions by 33% in 2020, surpassing the Dubai Carbon Abatement Strategy target of reducing 16% of emissions by 2021.



Management Approach

Climate change is one of the major challenges of our time and adds considerable stress to our societies and to the environment. From shifting weather patterns to rising sea levels, the impacts of climate change are global in scope and unprecedented in scale. Without drastic actions today, adapting to these impacts in the future will be more difficult and costly.

DEWA takes the view that utilities play a crucial role in decarbonising society. This includes recognising the impact of DEWA's operations on the climate and how tackling climate change may present key benefits for its business by improving its brand reputation, cost reduction, resilience against harmful effects, alignment with regulations and investors' confidence. DEWA's leadership continues to advocate for strong climate action. DEWA established itself as a regional leader in climate change mitigation and adaptation efforts over the past years.

Here is a list of DEWA's work on Climate Change Mitigation and Adaptation:

DEWA's Mitigation Effort and Initiatives

- DEWA's CO_2 Emission Reduction programme aligned with Dubai Carbon Abatement Strategy 2021
- Comprehensive Monitoring, Reporting and Verification (MRV) framework for DEWA's carbon emissions in compliance with ISO 14064
- Main stakeholder for the UAE Climate Change Taskforce and international climate change negotiations
- Driving the transition towards a low carbon economy by deploying initiatives critical to decarbonization
- Key stakeholder in implementing the Demand Side Management Strategy 2030
- Supply side energy efficiency improvements and optimisation projects

DEWA's Adaption Effort and Initiatives

- Comprehensive climate change resilience plan
- Setting adequate reserve margin for power generation and water production
- Diversification of generation & desalination sites
- Planning considerations and operational feats for reliability, security and stability
- Asset management planning and framework
- Managing quality of source water
- Reducing unaccounted water losses

DEWA's Climate Change Resilience Plan

Climate change has emerged as one of the leading priorities worldwide and one of the main issues facing the international community. Globally, it is causing extreme heat, rainfall, floods, droughts, tropical storms, and hurricanes. The latest global risks report by the World Economic Forum, ranked extreme weather events, natural disasters, and failure of climate change mitigation and adaptation among the top five risks for the world in 2018. Environmental risks, which have grown in prominence over the 13-year history of the World Economic Forum's Global Risks Report, are an area of particular concern.

Regionally, the power and water sectors in the UAE are also vulnerable to the adverse effects of climate change. Climate change is a cross-cutting risk that can have a physical impact on DEWA's operations, and economic, regulatory, and reputational impact on its business. This makes climate change action one of DEWA's top priorities. DEWA has developed a comprehensive Climate Change Resilience Plan to understand, evaluate, and respond to the potential climate change impacts on its assets and operations. DEWA is one of the first entities in the region to develop such a plan. It includes its existing mitigation measures, preventive controls, and future resilience tasks to address the potential impacts of various climate change drivers.

DEWA's Climate Change Resilience Plan is driven by a vision, guiding principles, approach, and goals to ensure power and water sector resilience.

DEWA's Climate Change Resilience Plan was developed based on a detailed risk assessment and in line with best practices. The Climate Change Resilience Plan is integrated into DEWA's Enterprise Risk Management (ERM) system and is also a part of its strategic planning.

The Annual Management of the Climate Change Resilience Plan is Developed Following DEWA's ERM Framework:

VISION	▪ A climate resilient utility ensuring sustainable, innovative and resilient operations and assets to withstand the impacts of climate change
GUIDING PRINCIPLES	▪ Robustness ▪ Resourcefulness ▪ Rapid Recovery ▪ Adaptability
APPROACH	▪ Risk Assessment ▪ Adaptive Practices ▪ Prevention and Management ▪ Stakeholder Engagement
GOALS	▪ Integrate climate change considerations into business practices ▪ Maintain an evidence based resilience plan ▪ Build and maintain resilient infrastructure ▪ Align with local and national climate change resilience plans ▪ Ensure safe and sustainable operations ▪ Improve DEWA's adaptive capacity ▪ Maintain a business model aligned with national and international strategies and policies

DEWA's ERM Framework

Identifying Climate-Related Risks

To cope with an uncertain future where climate change may have wide-ranging effects on the environment, and on socio-economic conditions, DEWA has analysed and assessed climate change trends and projections using climate models to provide an overview of observed climatic trends and projections at the global and local levels; which are essential in shaping an effective climate change resilience plan for DEWA. The output of these projections helped indicate the climate change conditions that could impose potential physical and transitional risks on DEWA's business and operations.

There are several ways of classifying climate change risks however; DEWA assessed two main drivers for climate-related risks: policy drivers and climate drivers. Both drivers are based on the cause of risk of impact.

For the policy driver risks, the global, national and regional climate change policies and strategies relevant to DEWA were assessed to identify potential risks for each policy driver that DEWA may face in the coming years and decades.

Considering the climate drivers, DEWA reviewed the climate variables identified based on available regional climate change trends and projections aligned with Dubai Climate Change Adaptation Strategy. The geography and climate conditions vary across the different Emirates in the UAE. These variations and other factors include variations in the risks associated with the specific power facilities resulting from location, age, design, and the adaptive capacity of facilities.

In 2020, DEWA identified and introduced a Climate Change Risk index, based on the climatic and policy drivers in its ERM system, and overseen by the Group Risk & Resilience Committee at DEWA. This included an analysis of the potential impact, various interdependencies, and outlying risk heat maps. DEWA also identified the key risk indicators and the risk of climate change. These show the potential impact of both policy- and climate-drivers on DEWA's strategy and operations.

The risk of climate change could have financial and non-financial consequences for DEWA. These include revenue loss, service disruption, health and safety, environment, and reputation. Climate change is

expected to bring warmer ambient temperatures, rising sea levels, more frequent and severe extreme weather events, and warmer seawater temperatures. Furthermore, there will be less fresh water, an increase in sea acidity and a change in precipitation levels. These may have several impacts on DEWA's business and operations.

In 2020, DEWA identified and introduced a "Climate Change Risk" driven by climatic and policy drivers in its ERM and governed by the Group Risk & Resilience Committee at DEWA. After analysis and classification of potential impacts, and various interdependencies, outlining risk heat maps, and identifying key risk indicators, the risk of climate change reflects the potential impacts of both policy and climatic drivers on DEWA's strategy and operations.

In 2021, DEWA adapted to prepare for these impacts by applying its key preventive controls and mitigation measures integrated within its ERM system. DEWA is continuously monitoring climate change drivers to be able to mitigate potential climate change impacts on its physical assets and business operations. Through the established climate change resilience governance and framework, the climate change resilience team analyses climate-change drivers and trends, classifies and rank the identified risks, and studies vulnerabilities and opportunities based on projected climate-change scenarios.

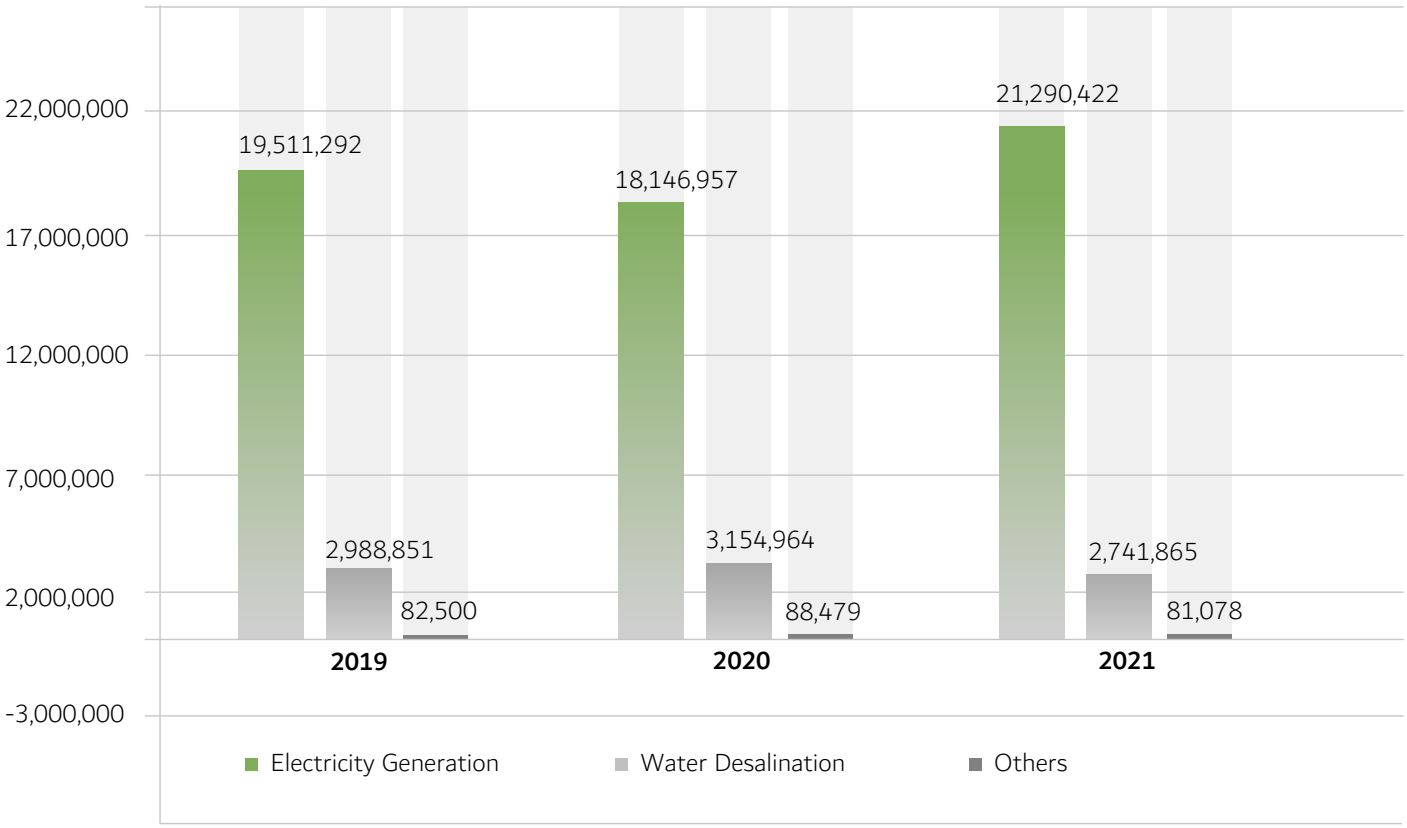
DEWA's Emission Reduction Programme (GRI 305-1, 305-4, 305-5, EU5)

DEWA believes that the challenges posed by climate change require coordinated and decisive action. Its aim is to reduce its carbon footprint while maintaining a secure, reliable, and affordable supply of power and water. DEWA has systematically worked on reducing its emissions through its Carbon Dioxide Emission Reduction Programme, launched in 2012. DEWA's CO_2 Emission Reduction programme is a long-term carbon-emissions-abatement strategy that provides an extensive analysis of DEWA's current greenhouse gas emissions, sets targets to reduce carbon dioxide emissions up to 2030 from all DEWA's operations, and incorporates proposed emission reduction targets within its business decisions and overall growth strategies. DEWA's efforts have led to a significant reduction in carbon emissions in Dubai.

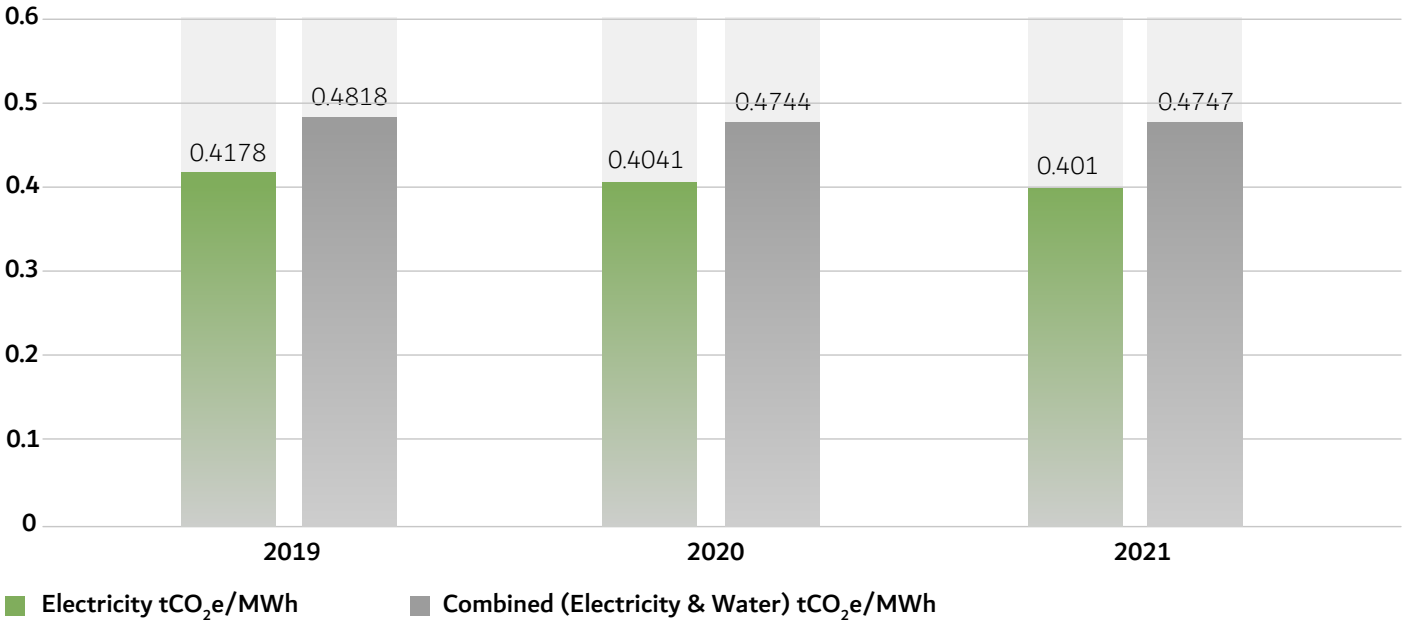
Dubai managed to decrease its carbon emissions by 33% in 2020, surpassing the Dubai Carbon Abatement Strategy target of reducing 16% of emissions by 2021. This achievement reinforces Dubai's ambition to move steadily towards becoming a carbon-neutral economy by 2050.

DEWA's CO_2 ERP has three strategic pillars to ensure its strategic objectives are met: climate change functional strategy, emission reduction targets forecast model, robust monitoring reporting and verification system aligned with the annual performance management system. The ERP is a comprehensive programme that considers reductions from both the demand and supply sides. It considers several key factors: Dubai's energy and water growth requirements, Dubai's water and electricity consumption rationalisation initiatives, DEWA supply-side efficiency improvements, and the diversification of its energy mix. The ERP targets were developed for both emission intensity (tCO_2e/MWh) and the absolute emissions (tCO_2e) for short-, medium-, and long-term emission-reduction tasks up to 2030, with 2010 used as the baseline. DEWA's actual emission reduction performance is measured annually against the Business As Usual (BAU) scenario. DEWA's ERP sets a planned reduction target of 35% of its scope 1 greenhouse gas emissions by 2030 against the BAU scenario. This is based on DEWA's 2020 Power and Water Master Plan, which is updated every year.

Emissions by Source from Scope 1 $MtCO_2e$ 2019-2021



Carbon Emission Intensity, tCO_2/MWh of Electricity Generated (2019-2021)



DEWA's Carbon Footprint

DEWA is one of the first entities in the region to develop a comprehensive Monitoring, Reporting and Verification (MRV) framework for its GHG emissions since 2012, establishing that year as the baseline for reporting emissions. The MRV framework enables the reporting of emissions through DEWA's Carbon Footprint Report, which is prepared in accordance with the GHG Protocol and compatible with the ISO 14064-1, which also allows for integration with national and international GHG registries.

DEWA annually reports its Carbon Footprint Report, which quantifies and calculates its annual direct GHG emissions (Scope 1), covering CO_2, CH_4, N_2O, SF_6, HFCs and PFCs and indirect GHG emissions (Scope 2) from electricity imports. Scope 1 sources include fuel combustion during power generation and water desalination, sulphur hexafluoride (SF_6) usage in circuit breakers, fuel combustion in vehicles, and refrigerants usage for air conditioning and maintenance operations. In addition to emissions from small emissions sources:

- **CO_2 usage in fire protection systems and labs**
- **Acetylene usage for maintenance activities**
- **Process emissions due to desalination**
- **Diesel usage during emergencies (back-up generators)**
- **LPG usage for cable termination works**
- **Laboratory acetylene usage**

DEWA follows an operational control approach in consolidating, monitoring and reporting on its GHG emissions, quantifying them in terms of CO_2 equivalent, and therefore its subsidiaries or affiliates were not considered. DEWA has gone to all reasonable lengths to ensure the relevance, completeness, consistency, accuracy, and transparency of its Carbon Footprint Report. The quantification methodology employs the formula of GHG activity data multiplied by the GHG emission factor.

In 2021, DEWA's total carbon emissions from Scope 1 were 24,11 $MtCO_2e$ against BAU 31.15 $MtCO_2e$ and the carbon intensity based on grid emission factor for electricity and water is 0.4747 tCO_2e/MWh. Since DEWA itself is the producer of the electricity it consumes, Scope 2 emissions from its own consumption are part of Scope 1 emissions to avoid double counting. Indirect emissions from the power purchased are reported under Scope 2 emissions only. In 2021, no power was purchased by DEWA from other electricity grids. To comprehensively manage its GHG related activities, DEWA has quantified scope 3 GHG emissions resulting from DEWA's Business Travel and Employee Commute activities in 2021, which are 49,786.77 tCO_2e.

DEWA Offsetting Programme (GRI 302-1,304-4)

In 2012, DEWA initiated the implementation of its Offsetting Programme by registering several emission-reduction projects under Clean Development Mechanism (CDM), of the UNFCCC. DEWA has issued 10,635 Certified Emission Reduction (CER) from its 13 MW Mohammed Bin Rashid Al Maktoum Solar Park's photovoltaic plant and 95,197 CERs from Thermal Energy Storage Turbine Inlet Air Cooling (TESTIAC) project.

DEWA was the first entity in the MENA region in 2017 to join the renewable energy market via the i-RECs Registry Platform to issue the International Renewable Energy Certificates (i-RECs) from the Mohammed bin Rashid Al Maktoum Solar Park 13 MW PV Plant, phase 2 of Mohammad bin Rashid Al Maktoum Solar Park at 200 MW, and phase 3 of Mohammad bin Rashid Al Maktoum Solar Park at 800 MW PV Plants. The i-RECs system represents an internationally applicable i-RECs tracking framework allowing end-users to express demand for specific types of renewable energy generation and enabling companies to demonstrate renewable energy consumption. i-RECs represent the attributes of electricity generated from renewable energy sources. These attributes are unbounded from physical electricity and can be sold or traded separately. As of 2021, DEWA has successfully issued 1,011,095 i-RECs for various international and national clients.

DEWA's Registered Clean Development Mechanism Projects

1. **Mohammed Bin Rashid Al Maktoum Solar Park** (Phase 1, 13 MW)
2. **Small Scale Solar Programme of Activities**
3. **Mohammed Bin Rashid Al Maktoum Solar Park** (Phase 2, 200 MW)
4. **Thermal Energy Storage Turbine Inlet Air cooling (TESTIAC) Project**

Case Study

E-Station Phase-1, Gas Turbine Upgrade

DEWA focuses on improving efficiency and reducing all types of emissions, specifically CO_2 and NOx. The design operation lifetime of DEWA's gas turbine rotor, in E-station (Phase-1) is 200,000 hours as the Generation Division requires the gas turbine to continue its service until the scheduled decommissioning of the plant, which will occur in 2037. DEWA considered this as an opportunity to minimise environmental emissions and improve overall efficiency.

Therefore, the following steps were taken to improve the gas turbine performance:

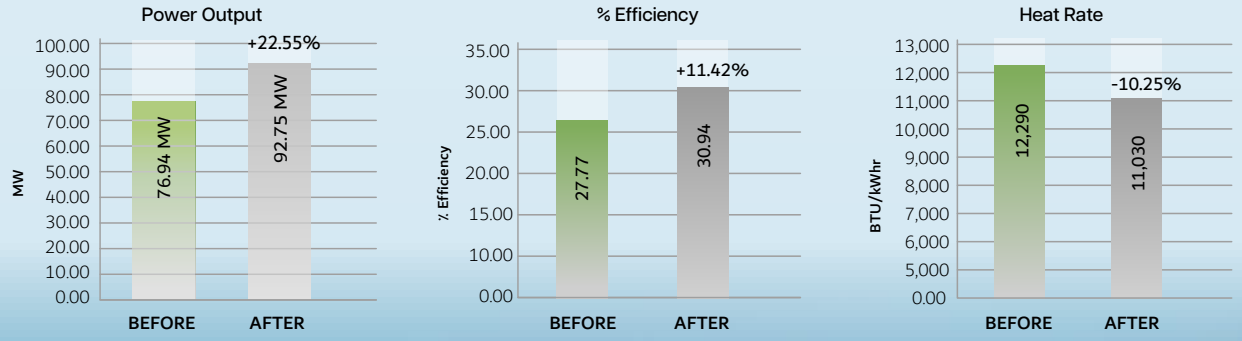
- The rotor was replaced with a refurbished rotor with new blades and vanes to enhance the remaining life of 100,000 hours and recover the performance degradation.
- The turbine blades and blades were replaced with latest Advanced Gas Path (AGP) system to improve the thermal efficiency of the plant and increase power output. It also increases the maintenance interval to 36,000 hours.
- The existing diffusion type NG burner system was replaced with Dry-Low NOx (DLN) type burner to reduce the NOx level.
- Addition of Inlet Bleed Heating (IBH) to the air intake system to improve part load emission compliance
- Modification of cooling and ventilation system to meet improved gas turbine performance

This resulted in an overall improvement of the gas turbine as shown below:

The Overall Benefits of The Gas Turbine Upgrade

Sustainability Outcomes and Benefits	Business Outcomes and Benefits
Reduction in NOx emission to 25 parts per million by volume dry (ppmvd)	Reduction in NOx emission by 1,726 Tons / Year
Thermal Efficiency improvement ≈10.6 %	Fuel-saving by 1,236,303 MMBTU / Year Reduction in CO_2 emission by 65,930 Tons / Year Reduction in operational cost

The Gas Turbine Performance Before & After The Upgrade:



Chapter 06

Environment

A 73% improvement on DEWA's average annual NOx emissions from all DEWA units.

By the end of 2021, DEWA had retrofitted 554 Refrigerant 22 (R-22) packaged units (out of 948 packaged units).

Management Approach

(GRI 103-1, 103-2, 103-3, 2-25, 2-27)

The UAE Government focuses on environmental protection while achieving robust economic and social development. In line with the UAE government initiative of "A Green Economy for Sustainable Development", DEWA developed a set of rules and guidelines to decrease its impact on the environment, which are taken into consideration within all projects and initiatives. DEWA is committed to protecting the environment and natural resources, mitigating climate change impact, and contributing towards sustainable economic development.

DEWA's commitment to complying with the applicable local, federal, and international standards, legislation, and regulations in all its activities and operations; using cutting edge Environmental Technology, has resulted in attaining distinguished environmental achievements; protecting environmental elements, including Air, Land and Water; while being consistent and assertive in fulfilling its strategic objective of sustainability to support the UAE's efforts to achieve the UNSDGs.

DEWA's Management is committed to effective implementation of an Environment Management Systems in compliance with ISO 14001:2015 Standard within its businesses, in order to achieve its purposes by providing a sustainable, efficient, and reliable power and water services, utilising state-of-the-art

innovative smart solutions. Therefore, DEWA has developed an Environmental Policy mainly to identify, demonstrate and ensure a positive environmental performance. The Environmental Policy applies to all DEWA activities, divisions, and stakeholders including contractors and suppliers.

In 2021, DEWA was not in violation of any regulations, nor did it receive any complaints relating to environmental matters.

For more information about DEWA's Environmental policy, kindly refer to the below link:

https://www.dewa.gov.ae/en/about-us/strategy-excellence/policies

Integrated Management Systems Policy

DEWA's Management is committed to the successful implementation of Quality, Occupational Health, Safety, and Environment (QHSE) Management Systems (ISO 9001, ISO 45001 and ISO 14001) within its business, to attain its purpose of providing globally leading sustainable, efficient, and reliable power and water services, utilising state of the art innovative smart solutions. DEWA considers QHSE management systems as fundamental to its creativity, innovation, continuous improvement process and sustainability. Furthermore, DEWA is committed to being a globally leading sustainable innovative corporation with compatible QHSE governance by adhering to various factors. Some of these factors are the following:

- Adopt and implement best international practices and approved QHSE standards.
- Take all necessary measures to eliminate hazards and mitigate risks to occupational health and safety in the workplace environment.
- Fully protect and prevent the pollution of the environmental elements of air, land and water.
- Sustainably manage natural resources.
- Adopt life cycle perspective in all stages of activities, raw material acquisition, utilising resources and managing waste by reducing, reusing and recycling, where appropriate, as per applicable regulations, policies and systems.

DEWA has 16 Integrated Management System procedures, which fall under the Integrated Management System.

The table below demonstrates the Integrated Management System Procedures including the main purpose and scope:

IMSP	Title
IMSP-001	Control of Documented Information
IMSP-002	Control of Retained Documented Information
IMSP-003	Identification of H&S Hazards, Environmental Aspects & Impacts and HSE Risk Assessment
IMSP-004	Procedure for Identification of legal and other requirements
IMSP-006	Participation, consultation and communication
IMSP-007	Emergency Preparedness and Response
IMSP-008	Monitoring & Measurements
IMSP-009	Control of Monitoring and Measuring Resources
IMSP-010	Evaluation of Compliance
IMSP-011	Incident Reporting and Investigation
IMSP-012	Control of Non-conforming Products
IMSP-013	Nonconformity and Corrective Action Procedure
IMSP-014	Internal Audit
IMSP-015	Management review
IMSP-016	Process Management

Waste Management

(GRI 103-1, 103-2, 103-3, 306-4, 306-5)

DEWA has built an effective waste management system for each division within the organisation based on their daily operational practices. All systems have one unified target, which is capturing and reducing the amount of waste generated. Furthermore, DEWA obtains wastewater discharge permit bi-annually from Dubai Municipality to comply with regulatory requirements and ensure that the quality and quantity of the wastewater discharged from Jebel Ali Power and Desalination Complex are within the permitted discharge quality and quantity limit. Moreover, DEWA works closely with Dubai Municipality to manage the waste generated from its operations daily. In 2021, DEWA transported 420.56 tons of hazardous waste through a third-party company that follows Dubai Municipality guidelines and regulations. DEWA ensures sustainable development and minimises environmental impact of its activities by adopting circular measures. In 2021, DEWA earned a total of AED 59,770,306 from selling scrap waste materials as well as AED 63,080 selling from waste oil. In 2021, DEWA earned AED 59,770,306 from selling scrap waste materials.

The table below demonstrates the hazardous and non-hazardous waste generated and methods of disposal from the (2017-2021):

		Year				
Waste Figures	**Unit**	**2017**	**2018**	**2019**	**2020**	**2021**
General waste sent to landfill	Tons	2,341.20	2,628.63	5,335.45	4,823.64	4,378.53
Hazardous waste disposal to Dubai Municipality	Tons	138.75	49.25	68.89	181.69	420.56
Wooden packing reused	Cubic Foot	14,629	16,409	7,049	6,462	11,905
Waste water recovered	MIG	195.97	226.59	193.24	200.93	238.63
Waste oil recovered for use	Liters	16,900	60,566.6	23,636	18,184.4	5,455.31
Recycled waste paper	Tons	39	38.4	277.78	269.59	127.18
Spill Pallet made of IBC drum	No.	83	100	223	117	95
Revenue from scrap/waste materials sold	AED	2,082,713.95	1,126,817.32	5,548,069.48	57,294,667	59,770,306
Savings from selling waste oil	AED	16,560	30,432	99,200	45,296	63,080

Heating, Ventilation and Air Conditioning

DEWA is currently retrofitting its Heating, Ventilation and Air Conditioning (HVAC) packaged units at its Transmission Substations; replacing its packages using Refrigerant 22 (R-22) with the more eco-friendly R407C. As of the end of 2021, DEWA has retrofitted 554 packaged units (out of 948 packaged units), and retrofitting of the remaining 394 packaged units will be completed by 2027.

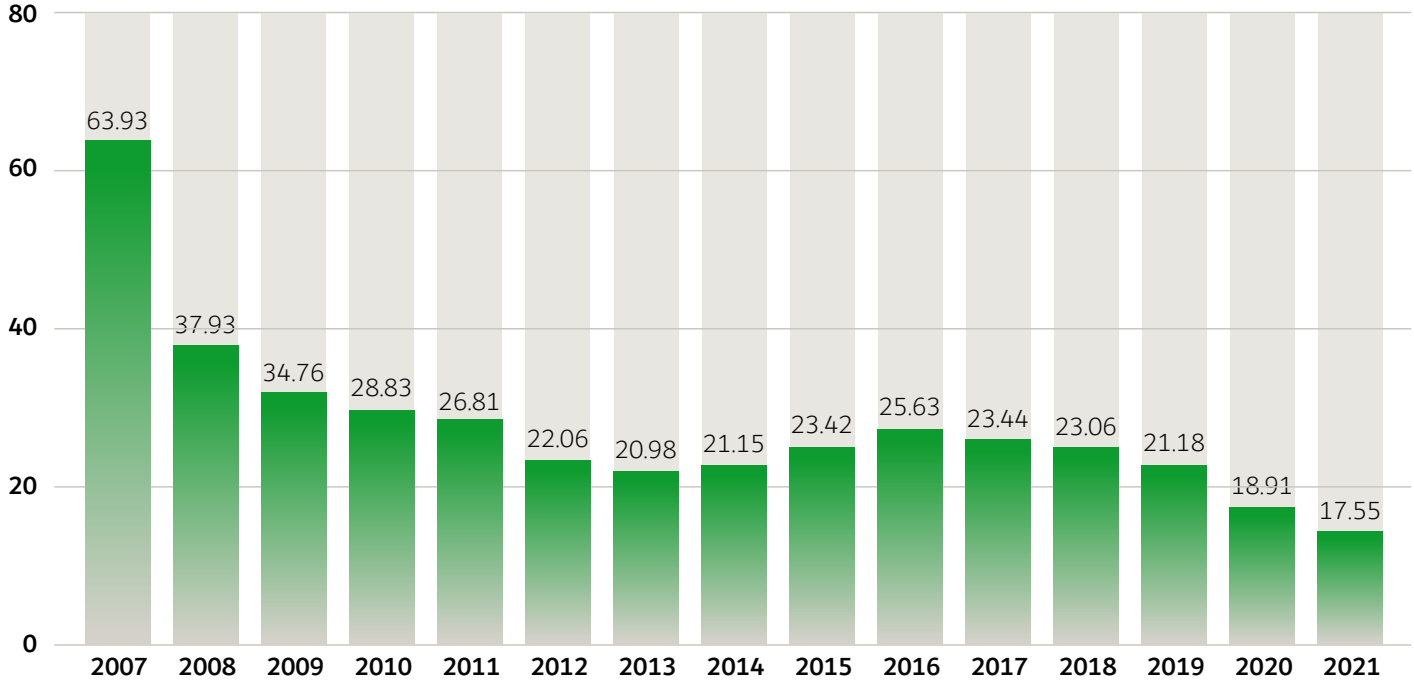
Minimisation of Air Emissions

(GRI 102-11, 305-4; 305-5; 305-6; 305-7)

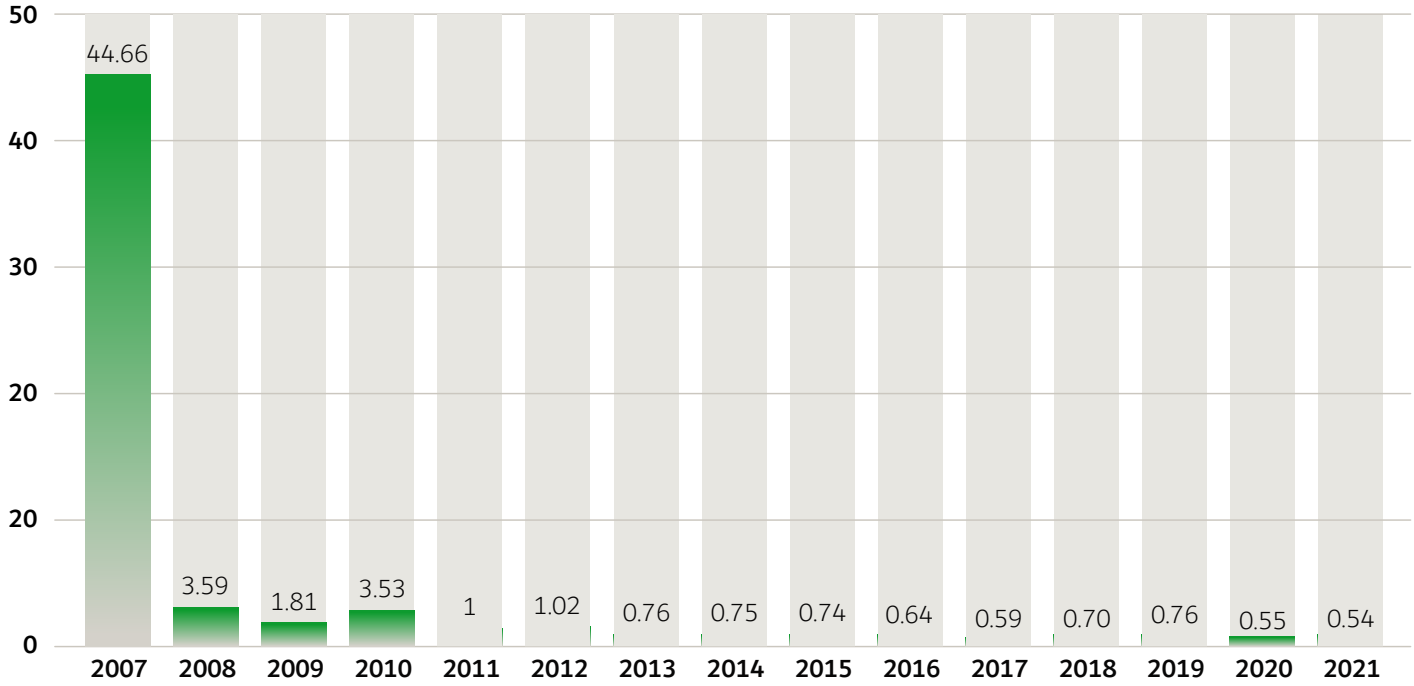
Air emissions have a damaging impact on our local climate, ecosystem, human health and air quality. DEWA focuses on reducing air emissions by minimising and limiting all types of harmful emissions, such as nitrogen oxides (NOx) and Sulphur dioxide (SO_2). In 2021, DEWA's average annual NOx emissions from all units, including all types of fuel, gas turbines, and boilers was 17.55ppm, an improvement of 73%. DEWA's NOx annual average emissions were recorded to be less than the UAE Federal Government requirement of 37ppm and the European Union Requirement (Large Combustion Plant Directive 2001 for Plant Built After 2003) of 27ppm. The SO_2 emissions has maintained very low in percentage.

In addition, DEWA focused on several smaller-scale initiatives to eliminate the leakage of a potent greenhouse gas Called Sulphur Hexafluoride (SF_6) from switchgears used to control, protect and isolate electrical equipment. The SF_6 has has a global warming potential of 22,800 times that of carbon dioxide and so any leakage occurrence will significantly impact the environment. The SF_6 gas leaks from 132 & 400 kV GIS are all promptly attended to by DEWA's maintenance team to achieve 100% rectification of identified SF_6 gas leaks.

Annual NOx Air Emissions, 2007-2021 (PPM)



Annual SO_2 Air Emissions, 2007-2021 (PPM)



Towards a Circular Economy

(GRI 103-1,103-2,103-3)

A sustainable business and operation are of utmost priority for DEWA and have been strategic drivers behind DEWA's successful journey. Building on the momentum of its circular activities, the organisation continues to move along this pathway by adopting a clear circular economy strategy that will help accelerate its business along the entire value chain and shift away from the traditional business approach.

DEWA has set a clear ambition to become a circular leader in the region by focusing on optimal resource use, creating social, economic and environmental value. Through this strategy, DEWA continues to deliver its core activities in line with the best global practices by designing out waste and pollution, regenerating ecosystems and contributing to a healthier environment and society.

DEWA's circular economy model holds particular promise in contributing toward many of the strategies and objectives set on a global, federal and local level, which include the UN Sustainable Development Goals 2030, UAE Vision 2021, UAE Circular Economy Policy, and the Dubai Clean Energy Strategy 2050.

DEWA's Circular Economy Model is based on five key circular principles that serve as a basis for circularity within DEWA:

1. Circular Design and Use of Circular Material
2. Optimise Asset Management
3. Value Retention and End-of-Line Treatment
4. Circular Partnership
5. Renewable Energy, Energy and Water Efficiency

DEWA's Circular Economy Model provides insight into its focus, while moving its business to become more circular. It aims to develop business and fully collaborate with stakeholders in the value chain by focusing on smart users, circular procurement and supplier engagement:

Smart Users

DEWA aims to actively support its clients in optimising the energy consumption, and lowering resource use by focus on real -life data and offering smart use solutions.

DEWA sets circular procurement criteria for its assets and equipment, to aim for circular procurement throughout the value chain.

In order to ensure full value chain collaboration, DEWA engages with its suppliers on the use of circular material, the re -use of assets, and creating collaborations to jointly contribute to the transition towards a circular economy.

Some of DEWA's Projects That Adopt The Circular Economy Principles Include:

Project	Start Date	Project Results
Supply Side Energy Efficiency Improvement Programs	2006	The initiative achieved huge savings in fuel consumption, which resulted in significant financial savings. **Efficiency improvement from 2007-2021 with respect to 2006 was 37.6% an equivalent of a reduction of ~73 million tons of CO_2.**
Mohammed Bin Rashid Al Maktoum Solar Park	2012	Upon completion, the project will reduce **6.5 million tons of carbon dioxide emissions annually.**
Shams Dubai initiative	2015	The project contributes to reducing carbon emissions by reducing dependence on fossil fuels and shifting towards Renewable energy (Solar energy).
40 MIGD K Station Sea Water Reverse Osmosis (SWRO) Desalination Plant Project in Jebel Ali Plants	2016	The project will improve the overall efficiency of desalinated water production, as it will reduce carbon dioxide emissions by utilising clean and renewable energy produced from MBR Solar Park. **The total production capacity reached 40 million Imperial Gallons per Day (MIGD) of desalinated water.**
Pump Hydroelectric Power station in Hatta	2019	The first pumped hydroelectric power station in the Gulf region will generate **250 megawatts of clean energy**.
DEWA's Aquifer Storage and Recovery (ASR) Project	2019	**169,680 Tonnes of Carbon Emissions reduction**

Sustainable and Energy Efficient Buildings (GRI 302-4)

Energy Management of DEWA Premises and Assets

DEWA applies the highest local and international standards for green buildings at all its assets. DEWA is committed to creating a sustainable built environment that is energy, water, and material-resource efficient, whilst reducing the building's impact on human health and the environment throughout its life cycle.

This supports the UAE's efforts to create a green and sustainable economy as well as the Nationally Determined Contributions (NDCs) for the UAE against climate change and the Dubai Digital Authority initiative to make Dubai the smartest and happiest city in the world.

DEWA is currently expanding the boundary of the Energy Management System to cover major operations that would include generation plants, substations, administration buildings and fleet. The primary purpose of the Energy Management System is to identify and implement energy conservation opportunities with cost benefits and review our energy performance periodically.

Considering DEWA's critical operation facility in Jebel Ali, the total auxiliary energy consumption from power and water generation is as follows:

Auxiliary Consumption (MWh)	2017	2018	2019	2020	2021
Solar	1,692	1,685	1,636	1,642	1,647
Gas, DFO & MFO	3,622,710	3,689,613	3,761,614	3,715,408	3,838,667
Total	3,624,402	3,691,298	3,763,250	3,717,050	3,840,314

Note: DFO: Diesel Fuel Oil, MFO: Medium Fuel Oil

Year	fficiency Improvement rt 2006 (%)	Auxiliary Power Consumption Reduction MWh) wrt 2006	Carbon Reduction (Million Tons of CO2) due to efficiency mprovement wrt 2006	Fuel saving due to efficiency improvement rt 2006 - MMBTU
2017	28.87	09,297	.40	19,943,316
2018	29.68	13,745	.65	24,713,523
2019	31.40	08,148	.06	32,295,018
2020	33.41	93,385	.11	33,309,503
2021	37.63	14,781	.04	50,786,454

DEWA has achieved great results in terms of reducing auxiliary consumption, fuel savings & gross efficiency improvement due to the decoupling of Power Generation & Water Production (Addition of Solar Plants for Power Generation & Sea Water Reverse Osmosis Plants for desalination instead of highly energy-intensive MSF desalination plants), 37 GD Initiatives and Optimum Design, Reengineering and O&M.

In addition, DEWA achieved the highest availability of cogeneration plants, and reduced the number of trips which involved economic unit commitment/decommitment to meet the required power & water demand with minimum fuel consumption while maintaining system security and reliability.

In addition, it has achieved fuel savings of 150,786,454 MMBtu in 2021 with respect to 2006 due to Gross Efficiency Improvement.

Al-Shera'a Building

DEWA's new headquarters, called Al-Shera'a (Arabic for sail), will be the tallest, largest, and smartest Zero Energy Government building in the world. Total energy used in the building during a year will be equal to or less than the energy produced on-site during that year. DEWA's new headquarters is designed to receive a platinum rating by LEED (Leadership in Energy and Environmental Design) and a silver rating from the WELL Building Standard. Al-Sheraa's built-up area is over 2 million square feet.

The building will have 15 floors, a basement and 4 floors of car parking. The building can house more than 5,000 people. Facilities will include a 500 seating auditorium, training halls, a creativity centre, an exhibition hall, a nursery, and a gym, among others. The building will have over 20,000 square meters of photovoltaic solar panels rated at over 4,000 kilowatts. There will be 1,000 square meters of Building Integrated Photovoltaics.

The building will generate over 6,500 megawatt hours (MWh) a year of renewable energy. It is intended to use 50% less water than regular buildings. DEWA's new headquarters will be directly linked to Jadaf metro station. This will encourage the use of public transport, to reduce traffic and the carbon footprint. It will use the latest technologies including IoT, Big Data and Open Data, AI, and the latest smart building management technologies.

DEWA's Sustainable Building

DEWA's Sustainable Building in Al Quoz, Dubai is the first sustainable government building in the UAE and the largest government building in the world in 2013 to receive a Platinum Rating for green buildings from Leadership in Energy and Environmental Design (LEED). Recycled materials comprised 36% of the construction materials used. The building uses 66% less energy thanks to the additional insulation in its walls and roof, and special glass to reduce heat transfer into the building, which helps reduce carbon emissions and protect the environment. Highly efficient water-cooled chillers cut down energy use. The building uses low-powered LED lights and automatic lighting control systems with occupancy sensors. In addition, renewable energy is available through an on-site 660-kilowatt (kW) solar power plant.

The Sustainable Building's systems help reduce water consumption by 48%. All sewage water is treated by a grey water treatment and sewage treatment plant. Furthermore, to reduce the Heat Island Effect, the building has a green roof that ensures the reuse of treated wastewater.

Sustainable Building Parking

DEWA's Sustainable Building Parking structure received the Parksmart certificate from the Green Business Certification Inc. (GBCI) of the USGBC. It is the first building in the MENA region to receive the Pioneer certification, the highest class within this certificate. The Parksmart certification is awarded following the evaluation of the parking facilities in certain areas, including design, operation, and innovation in the use of technologies, energy efficiency, reducing environmental impact, operational efficiency, and programme quality. The parking received 102 points, to qualify for pioneer category certification which requires achieving a minimum of 90 points.

Innovation Centre

The Innovation Centre has achieved LEED platinum, scoring 101 out of 110 points in the first quarter of 2020. The building achieved this distinction with high green marks in the areas of water efficiency, indoor environmental quality, energy efficiency and innovation and design. The building also harvests rainwater and treats greywater on site. Specifically, it reduces energy consumption by around 24%, without the integration of renewable energy.

Inside, 100% of the building annual energy consumption is covered by on-site renewable energy production systems, namely BIPV, PV Solar Plant and Solar Hot Water System. The building saves 50% of its water in all fixtures and had 24% of its building materials manufactured locally.

R&D Centre

DEWA's R&D Centre at the Mohammed bin Rashid Al Maktoum Solar Park is the only centre in the UAE focusing on renewable energy, smart grid technologies and energy efficiency. The R&D Centre received a Platinum Rating for green buildings from LEED by the US Green Building Council in 2019. The Centre has photovoltaic panels installed on its roof and car parking as well as Building Integrated Photovoltaics (BIPV) in its walls.

The building reduces energy consumption by over 25% and saves more than 50% water. Over 30% of construction materials used to build it were recycled. On-site renewable energy provides 13% of the energy in the building. This includes solar photovoltaic panels and BIPV.

Distribution Power Division Complex

DEWA's Distribution Power Division Complex in Al Ruwayyah has received the Platinum Rating for green buildings from LEED awarded by the USGBC, achieving 86 points. This is a new global recognition of DEWA's success in implementing the highest international standards in green buildings.

DEWA promotes the concept of Net Zero Energy Buildings to support sustainable development strategies. This is part of a framework that promotes economic growth without harming the environment and its resources. In 2019, DEWA achieved a global milestone with Dubai getting the Platinum Rating in the LEED for Cities certification awarded by USGBC. Dubai is the first city in the Arab World and the MENA region to receive this prestigious certification.
The Distribution Power Division Complex saves nearly 30% of energy, 51.46% of indoor water, and 60% of outdoor water compared to conventional buildings. 41% of the building materials have an Environmental Product Declaration (EPD) and 26% of the building material have Cradle to Cradle/Health Product Declaration certificates. The Complex features a 663KW solar photovoltaic system.

In addition, the Distribution Power Division Complex underlines DEWA's commitment to providing a convenient environment for employee happiness, and spreading positive energy among them. This increases individual and organisational competency according to the best international practices. The building provides a healthy work environment to enhance the happiness of employees through several features. These include maintaining the highest indoor air quality through a high-efficiency air filtering system, and periodic CO2 measurement and monitoring. The building includes parking for 1,335 vehicles, 3 happiness lounges, a nursery, and a library. It also includes 36,754 square feet of green areas on its rooftop that are easily accessible by employees, in addition to facilities that support DEWA's value-added services to its employees. The building achieves significant savings in the long-term in electricity and water consumption compared to conventional buildings.

Smart Grids Station (SGS)

DEWA is exploring the concept of SGS, which connects smart buildings to share information, help improve energy and water efficiency and make optimal use of renewable energy within a smart city. The SGS highlights the Smart City model through three concepts or systems: the smart office, smart building, and smart factory. The SGS comprises a 200-kilowatt (kW) photovoltaic solar power production system; a 9-kilowatt (kW) wind turbine; and a 500-kilowatt hour (kWh) lithium-ion battery energy storage system, which stores energy for later use. The SGS also has a smart chiller system integrated with a building management system, and a 100-tonne thermal energy storage system, which stores surplus cooling energy to be used when required, thereby reducing the demand for the smart chiller system.

DEWA's Green Garage workshops at Al Ruwayyah, decided to make the buildings an example of green ultra-modern industrial facility built to LEED Gold specifications. The project consists of 10 buildings that achieved LEED 2009 NC using LEED Campus Certification. The purpose of the project is to provide a place for DEWA's fleet vehicles, repair and maintenance workshops and other associated facilities necessary to carry out complete repair and maintenance activities. It has resulted in over 34% energy savings, 48% indoor water use reduction, reduced potable water use by 52.09% and effectively reduced AC and grey water drain for cooling purposes.

Chapter 07

Employees Chapter

Management Approach

(GRI 103-1, 103-2, 103-3)

DEWA continues to invest in its human resources as it believes they are the fundamental factors of success, and excellence, and to keep up with rapid changes in order to maintain DEWA's leadership. DEWA fosters and supports behaviour that drives employees to bring innovation and excellence into their work which contributes to sustainable growth for the long-term development by ensuring that all employees are given the same opportunities without discrimination based on sex, race, nationality, age or creed, in line with the policies and regulations of the UAE government. DEWA recognises the value of its employees, and provides every resource available for employee development, including training to support engagement on all levels. DEWA opposes all forms of illegal and unfair preference among employee and is committed to making all decisions regarding recruitment, evaluation, promotion, training, work assignments, or any functional advantage on the basis of competence and capacity in view of the laws and regulations of the UAE and in Dubai.

Diversity and Equal Opportunities

(GRI 405-1)

DEWA values the individual differences and diversity of its employees and works to ensure that the work environment is safe, fair, and equitable, so that employee needs are met, and that a culture of diversity and non-exclusion is maintained. DEWA opposes all forms of illegal and unfair employee preference and is committed to making all decisions regarding recruitment, evaluation, promotion, training, work assignments, or any functional advantage on the basis of competence and capacity in accordance with UAE and Dubai laws and regulations. DEWA's Human Resources policy and code of conduct to support and empower all employees are examples of policies for managing diversity.

Human Rights Assessment (GRI 103-1, 103-2, 103-3, 412-1, 412-2, 412-3)

- DEWA, including all its divisions, business units, and subsidiaries, is committed to conducting business with the highest level of integrity and in accordance with the letter and spirit of Dubai and UAE laws. DEWA is a morally conscious organisation, it aspires to use its position as a responsible organisation to promote the greatest ethical, human rights, and corporate conduct standards wherever it works.
- DEWAs provides adequate training to manage and ensure that human rights are recognised amongst its employees. In 2021 DEWA conducted a total of 33 sessions for human right assessment to each division and with a total number of 1503 attendees.
- In this regard, DEWA's Code of Ethics for Contractors included a requirement in all procurement contracts to comply with the SA 8000 Standard, which includes a good working environment, the Universal Declaration of Human Rights, and ILO agreements. All Tender Documents include a special clause on compliance with the SA 8000 Standard, and Tenderers must include a self-assessment form on SA8000 compliance in their offers. 100% of bulk purchase and project procurement activities are subject to human rights reviews based on self-assessment forms from tenderers and conformity with the SA 8000 norm. All new employees of the procurement organisation, as well as those who work in procurement, receive training on the terms and conditions of contracts, which includes the SA8000 standards. The Human Rights clause was incorporated in all 329 bulk purchases and project contracts for the year 2021. In the year 2021, the aforementioned sum and percent represent procurement contracts worth more than AED 2 million.
- One of DEWA's policies for it employees is "Planning, organising, and directing diversity support in a practical way to help produce a major positive impact in organisational performance and to attain happier employees".
- Also, other DEWA's policies regarding Human rights::

DEWA Policy For The Happiness, Accommodation and Empowerment of People of Determination	This policy defines DEWA's philosophy for the happiness, and accommodation and empowering of People of Determination. It also shows the commitment of DEWA to provide them with stable work.
Employee Accommodation Procedures	This policy provides housing privileges to employees.

A World-Class Workforce (GRI 102-7, 102-8, 401-1, 405-1, EU15)

DEWA is committed to hiring qualified and talented employees of all genders with the best academic qualifications and skills to join its workforce, with a total of 11,300 number of employees, 17.37% female and 82.62% male. This is accomplished in a variety of methods, including granting scholarships and grants to students at various universities, colleges, and training programs both at home and abroad to help them develop their skills and abilities. As a primary strategic target for recruiting various professions, this is intended to attract the most qualified students from the UAE. DEWA ensures that these special occupations receive the necessary ongoing training to ensure that they perform at a high level of quality and efficiency. DEWA recognises and promotes exceptional employees in order to foster culture of innovation and excellence, as well as to ensure that the highest levels of quality and efficiency are demonstrated in the workplace.

Total Number of Employees

Status	Nos.
Permanent	11,206
Temporary	94
Grand Total	**11,300***

*DEWA doesn't have any non-guaranteed hours employees.

Permanent & Temporary Employees, and a Breakdown by Gender

Status	Female	Male	Total
Permanent	1,961	9,245	11,206
Temporary	2	92	94
Grand Total	**1,963**	**9,337**	**11,300**

Permanent & Temporary Employees, and Breakdown by Region

Contract	Region							
	Africa	Asia	Europe	Middle East	North America	Oceania	South America	Total
Permanent	168	6,626	54	4,334	17	6	1	11,206
Temporary	2	89		3				94
Grand Total	**170**	**6,715**	**54**	**4,337**	**17**	**6**	**1**	**11,300**

Full-time and Part-time Employees, and Breakdown by Gender

Contract	Female	Male	Total
Full Time	1,963	9,337	11,300
Part Time	0	0	94
Grand Total	**1,963**	**9,337**	**11,300**

Full-time and Part-time Employees, and Breakdown by Region

	Africa	Asia	Europe	Middle East	North America	Oceania	South America	Total
Full Time	170	6715	54	4,337	17	6	1	11,300
Part Time	0	0	0	0	0	0	0	0
Grand Total	**170**	**6,715**	**54**	**4,337**	**17**	**6**	**1**	**11,300**

New Employee Hires by Age Group, Gender, and Region

Age Group	2019	2020	2021
18-29	226	170	218
30-39	121	35	57
40-49	29	9	10
50-59	9	2	3
60-69	1	0	0
70-79	0	0	0
Total	**386**	**216**	**288**

Gender	2019	2020	2021
Female	51	44	57
Male	335	172	231
Total	**386**	**216**	**288**

Region	2019	2020	2021
Africa	18	2	6
Asia	357	210	279
Europe	10	2	3
North America	1	2	0
Total	**386**	**216**	**288**

Employee Turnover by Age Group, Gender and Region

Age	2016	2017	2018	2019	2020	2021
Under 30	39	50	48	36	12	15
30-50	182	214	219	224	133	203
Over 50	25	29	32	38	29	26

Gender	2016	2017	2018	2019	2020	2021
Male	207	245	260	251	156	211
Female	39	48	39	47	18	33

Region	2016	2017	2018	2019	2020	2021
Africa	3	26	32	35	14	19
Asia	156	182	201	178	119	181
Australia	0	1	0	0	0	0
Europe	4	6	2	8	3	3
North America	0	3	3	6	2	1
Middle East	83	75	61	71	36	40
Total	**246**	**293**	**299**	**298**	**174**	**244**

Percentage of Employees Eligible to Retire in the Next 5 Years by Category and Region

Continent	Engineers	Operators	Lineman	Mechanics	Other	Total
Africa	2	0	0	0	8	10
Asia	120	62	5	19	423	629
Europe	0	0	0	0	16	16
Middle East	7	1	0	4	113	125
North America	0	0	0	0	2	2
Grand Total	**129**	**63**	**5**	**23**	**562**	**782**

Percentage of Employees Eligible to Retire in the Next 10 Years by Category and Region

Continent	Engineers	Operators	Lineman	Mechanics	Other	Total
Africa	7	1			22	30
Asia	260	136	17	64	910	1387
Europe	0				25	25
Middle East	21	4		5	265	295
North America	1				6	7
Grand Total	**289**	**141**	**17**	**69**	**1228**	**1744**

Recognising and Rewarding Employees

DEWA has developed an internal culture of excellence by implementing several award schemes to encourage staff to strive for excellence and to encourage employees to compete in a positive way. DEWA Women's Committee organised the Edhaa (Spotlight in Arabic) initiative in 2021 to recognise its female employees' professional, voluntary, and community achievements. The committee highlights successful female role models in DEWA and the community through its internal online newsletters. Through DEWA's Excellence Award and Recognition Programme, individuals and teams who excelled in their work were recognised. In 2021, DEWA honoured 2014 employees and 81 teams, accounting for 18.9% of the total of DEWA employees. The 2021 recognition programme's happiness rate had reached 89.95%.

By the end of 2021, DEWA recognised 979 of its illustrious employees and 78 teams for DEWA's Internal Award in the following categories: Distinguished Specialised Employees, Distinguished Technical or Technological Employees, Distinguished Supervisory Employees, Distinguished Innovative Employees, Distinguished Field Employees, Distinguished New Employees, Distinguished Administrative Employees, Unknown Soldiers, and Innovative Administrative Initiatives, The Most Outstanding Technical/ Technological project, The Best Agile Project, The Best Data Science and AI Initiative, and The Best Project / Initiative Achieving Sustainability.

DEWA also rewarded 24 individuals and 3 teams of (a total of 24 employees) who won the ShareK Award 2021, as well as rewarded and thanked 610 employees for their long service, and 1 individual and four teams of 376 employees won Special Act awards in 2021.

The Special Act award recognises exceptional performance by employees who have saved DEWA resources, reduced costs, completed various projects, or won local and international awards.

Employee Benefits (GRI 401-2, 405-2)

One of DEWA's targets, as a world-class standards workplace is, to reward employees fairly and generously, based on their performance. The Personnel Committee at DEWA evaluates employee performance appraisals, promotions, salary increments and other personnel matters. It also analyses job roles, coordinating them with people who have abilities, aptitudes and capabilities and provide equal chances to fill the job requirements. Employees in grades 7 and above can use SAP in DEWA's internal website to view their performance and professional development. They can also check details about their performance awards, training, and knowledge management-related learning, among many other things.

As per DEWA policies, remuneration is based on the grade or position of the employees, not their gender i.e, there is no difference between male and female employees. To have an optimum and healthy work environment for our people, and to strengthen their engagement and performance, DEWA offers for the permanent employees a broad range of benefits listed below including medical insurance, leaves, allowances, and accommodation entitlement.

Allowances (house rent deduction, duty car, Nature of Work allowance, mobile phone allowance, shift allowance, Special shift allowance etc.)	Life insurance is voluntary. In DEWA if the employee wishes he/she can enrol in the scheme and it is optional (Around 50 employees have enrolled).
Retirement Provision (Gratuity & Pension schemes)	Bonus
Leaves (Earned, special, accident, condolence, sick, parental, maternity or paternity, study or exams, Hajj, Idda, Confinement leave etc.)	Joining & Repatriating tickets
Accommodation/ Air passage Entitlement	Disability & Invalidity Coverage
Children Education Allowance	Residence Visa costs for employees & family
Medical Insurance/Healthcare/ Life Insurance	Salary Advance for New Joiners

Moreover, during the Covid-19 pandemic, and in order to adapt to the drastic changes and ensure business continuity, the Management adopted remote work practices and employees were allowed to work from home.

To further support the world-class workforce, employees are entitled to parental leave. In 2021, 511 employees have used parental leave.

Employee Parental Leave and Resumed Duty, 2021 (GRI 401-3)

Leave Type	Total Parental Leave Availed	Returned to work	Returned to work Rate*	Retained Employees	Retention Rate**
Maternity Leave	168	168	100%	199	97 %
Paternity Leave	343	343	100%	338	96 %
Total	**511**	**343**		**537**	

The period considered for parental leave considers the following:

- Male employees returning to work immediately from 5 January, 2021 to 5 January, 2022.
- Female employees returning to work immediately from 1 January, 2021 to 1 May, 2022.

**Male and female employees who availed parental leave between
1 January to 31 December 2020 and were still employed with DEWA 12 months after end of parental leave in this duration.

Total Number of Employees Entitled to Parental Leave by Gender, 2021

Gender	Total
Female	7471
Male	1168
Grand Total	**8639**

Employee Health and Safety

Management Approach

(GRI 103-1,103-2,103-3,403-1)

DEWA has a strategy for ISO 9001, ISO 14001, and ISO 45001 that focuses on writing with minute details and communicating DEWA's integrated management system. DEWA's integrated management system policy and corporate IMS procedures and process maps are all aligned. To improve the framework, it also has a specialised communication policy, risk management policy, social responsibility policy, information security policy, and implementation and monitoring guidance. This is all in accordance with Federal Law No. 8 of 1980, Ministerial Order No. 32 of 1982, Dubai Municipality Code of Construction, Dubai Municipality Guidelines, and the fourth-generation Dubai Government Excellence Programme, supported by Dubai Accelerators' 10X Strategy for future generations.

DEWA has classified its risk management method into three categories: high, medium, and low. It aligns with its health and safety monitoring and crisis management system. The DEWA OHSMS Manual includes all key information regarding the scope of OH&S Management Systems' jobs, operations, and workplaces. This category includes temporary employees, consultants, and contractors who work in DEWA.

Since the beginning of the pandemic, DEWA has taken the strictest precautionary measures to prevent the spread of COVID-19 in the workplace. The DEWA COVID-19 Management System and its implementation have been externally tested and verified, with the DEWA COVID-19 Management System winning the Diamond Award for Dealing with COVID-19 at the Harvard Business Council Award in June 2021. DEWA received the highest score among all institutions participating in this international award, which focuses on the concept of total quality management and aims to evaluate institutions in various sectors based on their level of excellence, adoption of best practices, and provision of high-quality services and products.

Hazard Identification and Risk Assessment (GRI 403-2)

DEWA has a comprehensive Hazard Identification and Health and Safety Risk Assessment procedure in place, as well as a risk management strategy governed by DEWA's Enterprise Risk Management and compliant with the ISO 45001 standard. In IMS protocol IMSP03, risk assessment, risk management, risk reduction, and opportunity assessment are all covered qualitatively and quantitatively. A section on environmental impact analysis is also included. It protects both routine and non-routine risks, according to the Health, Safety and Environmental (HSE) HSG 65 guidance (Managing for health and safety - UK Health and Safety Executive).

Employee competency is ensured by DEWA through internal training and refresher trainings, as well as British Safety Council recognised trainings, for which DEWA is an affiliate trainer. This training is required of line managers, HSE coordinators, and all other DEWA staff throughout the year.

Using the RADAR approach, DEWA evaluates the Health and Safety outcomes and success. All of DEWA's key performance indicators, as well as those of its divisions and departments, are compiled using a Balanced Scorecard. This is then displayed on a dashboard for all employees to see.

Employees can find H&S policies and procedures in the OHSMS Manual, the Integrated Management System, and HR regulations. Local law and the transparency regulations of DEWA's HR regulations, which are controlled by DEWA's Legal department, protect workers against retaliation. DEWA's Security Department also contributes to the support.

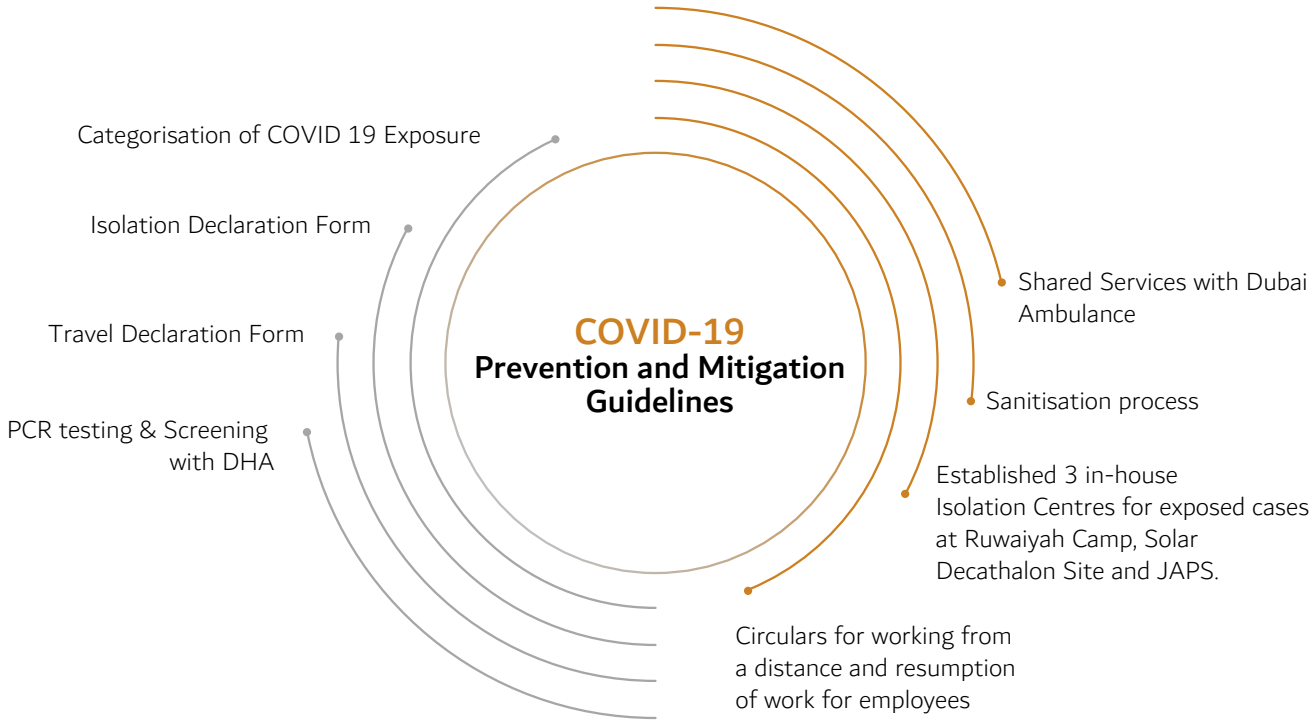
Occupational Health Services (GRI 403-3)

DEWA's Occupational Health section is responsible for the overall health and well-being of its employees. It works closely with DEWA's corporate counselling and employee happiness and wellness departments.

The British Safety Council externally assured the People of Determination (POD) H&S Standards and DEWA H&S Management System in 2021, the inclusive COVID-19 Management System was externally assured during the ISO 45001:2018 audit by an external assessor, and all EOD signed an EOD Individual Risk Assessment. DEWA has also updated the comprehensive Health and Safety Guide and successfully conducted two follow-up POD H&S awareness sessions.

The Occupational Health Protocol (SP12) is an Integrated Management System-consistent workplace process. They include procedures for stress management and counselling, as well as welfare, wellbeing, sanitation, and toxic chemical regulation. This protocol supports People for Determination as well as anyone suffering from musculoskeletal or vibration-related problems.

DEWA meticulously crafted its own COVID-19 prevention and mitigation guidelines, which were then distributed to all of its divisions, departments, sections, contractors, and vendors. The following were the main points:



H&S Communications and Representation (GRI 403-4)

Employee participation is one of the key drivers of DEWA's strategic intent as part of the IMS and to meet ISO 45001 and DGEP criteria. Vertical alignment is achieved through a dedicated process for DEWA employee participation, development planning, and consultation. A horizontal alignment to operational procedures is also present.

Employee contact, engagement, and growth are the main clauses and sub-clauses of IMS and H&S procedures. These include strategic development, training, workshops, and awareness, as well as participation in the DEWA Employee Happiness Survey on an annual basis. H&S employs both internal and external communication methods to market itself to its employees. They take part in performance evaluations, risk assessments, management worker participation initiatives, and H&S training, and all employees have access to the Intranet platform and the HSE mobile app.

DEWA's Health and Safety Committee is in charge of preventing workplace injuries and incidents in all of the organisation's branches. It is also in charge of enforcing occupational health and safety practices in accordance with the protocol (IMSP01-16), which includes delegated KPIs with Target Achievement Levels (percent -TAL) in addition to actual ones that make it more robust. It also ensures that steps are taken to aid in the implementation and upkeep of health and safety laws, regulations, and procedures. Committee members meet at least once a month for high-risk departments, every two months for medium-risk departments, and at least quarterly or as needed for low-risk departments.

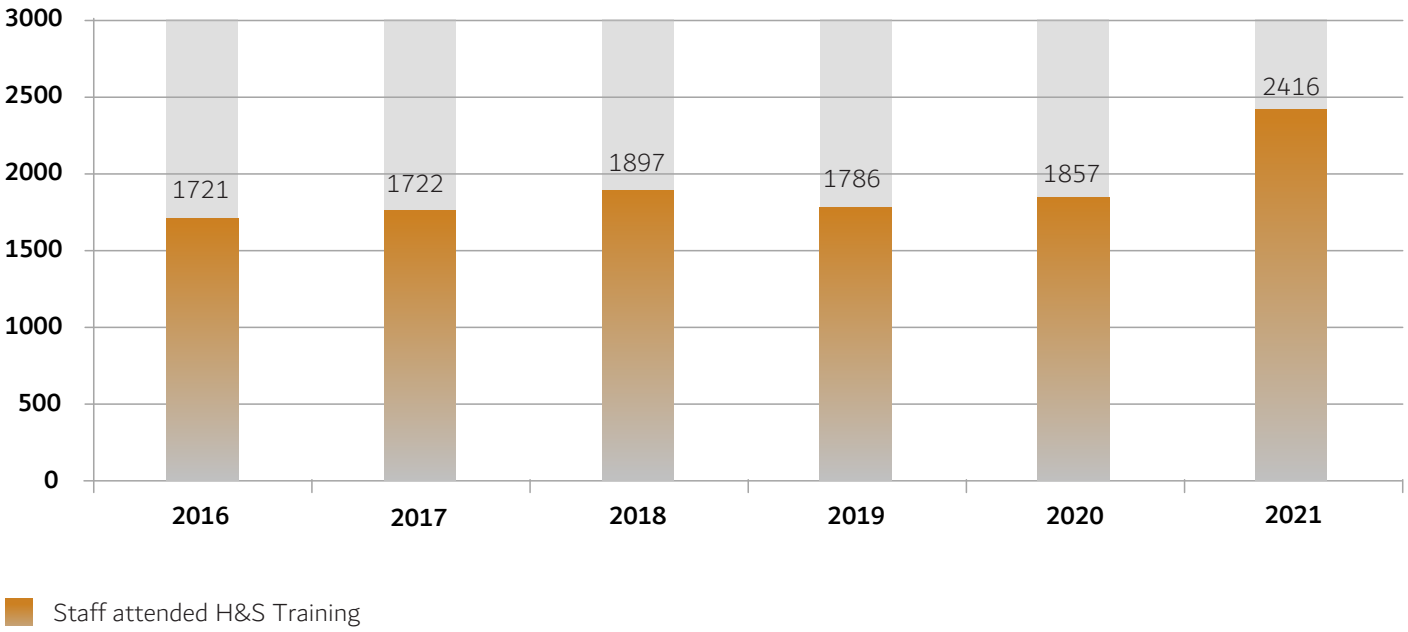
H&S Training (GRI 403-5):

During 2021, DEWA conducted many online campaigns to raise employee awareness regarding health and safety, and to maintain the continuity of all services in accordance with the highest international standards. OH&S employees conduct extensive training in DEWA, both formal and in-house, including customised trainings and training on specific work-related hazards, hazardous activities, or hazardous situations in Arabic, Urdu/Hindi, and English. External parties conduct specific OH&S training based on the job scope, as determined by the Training Needs Analysis (TNA). The OH&S training section and departmental HSE coordinators ensure that the workforce understands the importance of hazard communication and identification, and also how to recognise and minimise unsafe workplace acts and conditions. They also try to teach the skills and attitudes required to meet Departmental OH&S objectives. The following 13 courses were available through the OH&S Training section:

Sr. No.	Title
1	Hazard Identification & Communications
2	Office Ergonomics
3	Emergency Planning & Preparedness
4	Risk Assessment
5	Accident Prevention, investigation & Reporting
6	Preventing Back Injury
7	Health & Safety Induction Training
8	The Essentials of Health & Safety at the Workplace
9	Defensive Driving
10	Supervising Staff Safely in the Workplace
11	Foundation I - Workshop on Health & Safety Induction for GT/T's
12	E Learning- Back Safety Training
13	E Learning – Display Screen Equipment

In 2021, 2416 employees participated in 121 H&S training sessions. With 74 Covid-19 awareness workshops, 62 one-on-one consulting sessions, and 18 general health and safety awareness sessions. Following each course, an evaluation report was prepared that included feedback from participants who received less than average marks and were asked to attend the training programme again. This is part of DEWA's ongoing efforts to ensure the health and safety of its employees. The OH&S training section also prepares monthly staff awareness programs on various OH&S topics and distributes them to all HSE coordinators for distribution and toolbox talks for their departmental employees.

Number of DEWA Staff Attending H&S Training Conducted by H&S Department From 2016 to 2021



Promotion of Employee Health & Safety

(GRI 403-6)

DEWA's employees occupational and non-occupational healthcare covered by Enaya, a government-run organisation. It covers the medical needs of DEWA employees all over the world. DEWA tracks and mitigates both on- and off-duty accidents for any healthcare emergency or injury to any of DEWA's stakeholders, and ensures all premises are secured. There are first aid kits, evacuation seats, and provisions for People of Determination, such as braille text, tactile paving, vibration loops, and voice assist at customer service centres.

DEWA's OH&S promotion includes workshops, campaigns, distributor programmes, awareness sessions, and employee participation in health campaigns for basic screenings, eye tests, and other resources.

Throughout DEWA's dedicated participation and satisfaction rates published annually in the H&S Departmental calendar, with infographics, intranet emails, campaigns, third-party counselling sessions, and sports activities. These plans were created using screenings, surveys, and monitoring tools. The Occupational Health section organises campaigns based on the calendars of the World Health Organization, the Dubai Health Authority, and the United Nations. DEWA's health initiatives address chronic illnesses, heat stroke, stress, wellness, metabolic disorders, haemodynamic and musculoskeletal conditions, and non-work-related conditions.

Organising H&S Week

Since 2003, the H&S department has organised and conducted an annual internal H&S Week and a public H&S Week to raise OH&S awareness. The H&S Week is a platform for creating and increasing awareness of Occupational Health and Safety issues among employees and the general public. Through leadership involvement and a drive toward strategic direction, this event instils in employees an H&S-focused culture. The H&S week was held virtually in 2021. With an estimated 5,200 participants, each division, department, and contractor delivered their own set of HSE activities such as quizzes, H&S awareness; spin the wheel competitions, and H&S-talks competitions. Representatives from the H&S department use predetermined criteria to evaluate and reward distinguished achievers.

Annual Contractor Awareness Day

Since 2011, the H&S department has held an annual health and safety awareness day for contractors, consultants, and suppliers in order to reinforce DEWA's mission, vision, and policy of integrated administrative systems. The main learning outcome is to share the most recent health and safety systems and best practice developments in this high-priority area with suppliers, consultants, and contractors. This event is part of DEWA's overall strategy to raise health and safety standards for all suppliers, projects, activities, and operations. DEWA held a virtual event in 2021, which with 115 participants taking part.

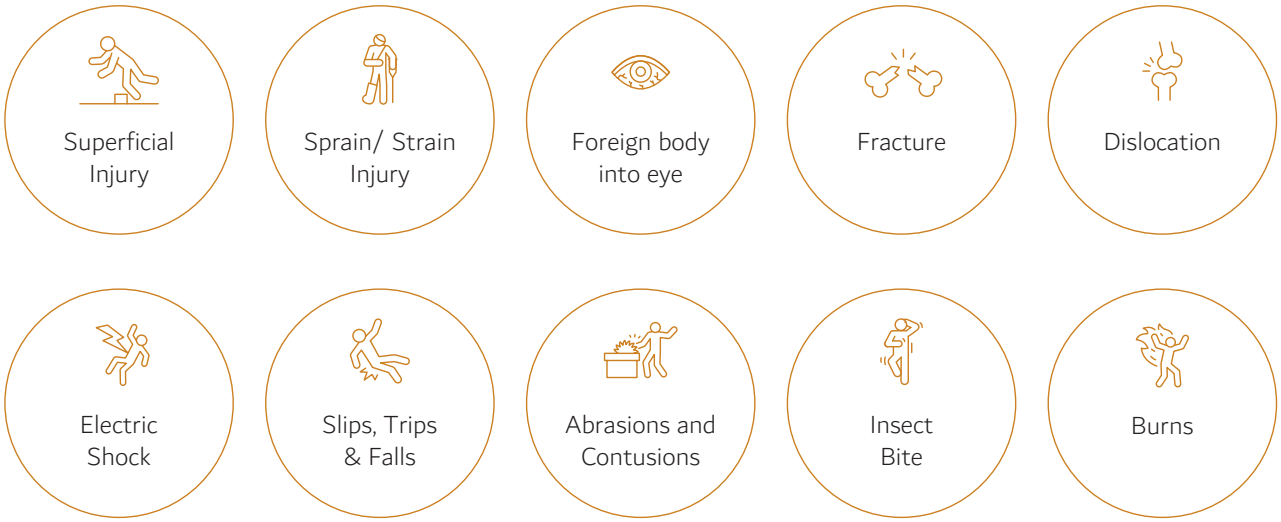
DEWA's Responsibilities

(GRI 2-27, 403-7, 403-9, 403-10)

DEWA's Occupational Health and Safety policy applies to all employees who work on its premises. DEWA is in charge of preventing and mitigating negative workplace health and safety consequences associated with its operations. DEWA owes a duty of care to its Contractors, Subcontractors, and Suppliers, and it adheres to the ISO 45001 standard to ensure health and safety. DEWA also has an SP06 Health and Safety Procedure for Contractors and Consultants in place to foster a health and safety culture and raise standards across all of its programmes, events, and operations. DEWA audits its activities on a regular basis to determine how well they are performing in terms of health and safety. For H&S, a corporate Global Hazard Code is aligned with processes, products, and facilities. In terms of quality and standards, Supply Chain Management follows the same methodology as H&S Management, from requisitions to deliverables.

Corporate Health and Safety has classified injuries as major or minor. A major injury is defined as a non-fatal injury that results in more than seven missed workdays but no permanent total or partial disability.

The following are the various types of injuries:



In 2021, DEWA had 15 major employee-related injuries and 9 contractor-related injuries. In 2021, DEWA recorded no employee-or contractor-related fatalities.

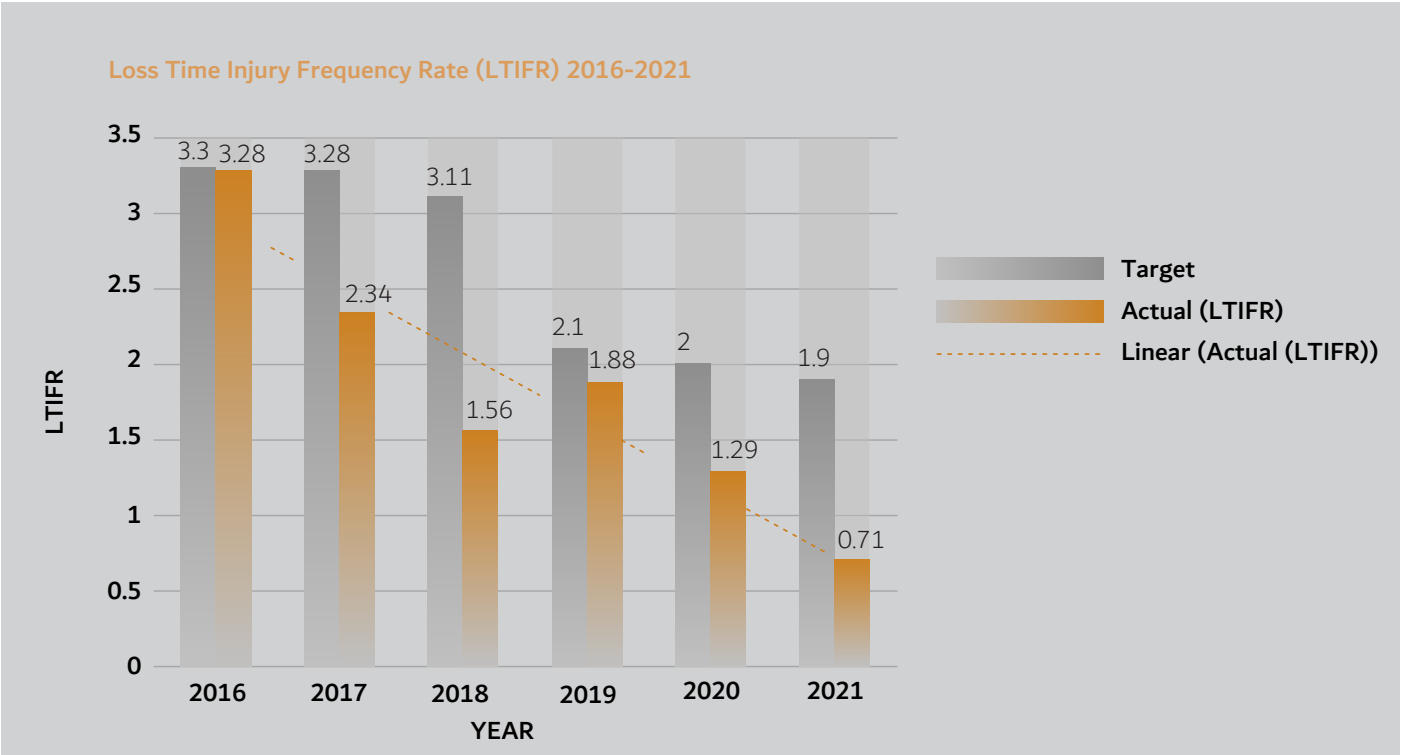
The processes for investigating work-related incidents are covered by DEWA's IMSP-11 procedure, which identifies the processes for reporting and investigating any work-related injuries and illnesses, property or equipment damage, near misses, and environmental impacts.

DEWA tracks and reports on Lost Time Injuries (LTI) which is consider as corporate strategic KPI. DEWA defines it as an injury sustained by an employee that results in a loss of productive work, either in the form of absenteeism or delays, in accordance with international best practices.

DEWA recording a 0.71 LTIFR in 2021 compared to 3.28 LTIFR in 2016

Lost Time Injury – 15 numbers in 2021
Lost Time Injury Frequency Rate (LTIFR) – 0.71
LTIFR = LTI x 1,000,000 / Working man-hours
15 X 1,000,000/ 2101125

Note: The 15 LTIs are injuries that resulted in claimed sick leaves or lost workdays by DEWA's permanent staff.



The LTIFR in 2021 decreased to 0.71 compared with 1.29 in 2020, partially due to the impact of the COVID-19 pandemic, as a number of employees were working from home during 2021.

Man Days Lost: **500 man days**

Total hours worked by DEWA employee:
21,011,250 Man Hours

Total number of staff x 7.5(average working hours in a day) x 250 (average number of days in a year)
11,206 x 7.5 x 250 = 21,011,250

Note: H&S Department works on the average number per quarter, not the actual at the end of the year.

DEWA identifies hazards through site inspections, risk analyses, and historical performance data analysis. According to DEWA's IMSP03 Procedure, many steps are taken to minimise and monitor risks, as well as eliminate them. Slips, trips, and falls, road traffic accidents (mostly caused by a third party), a foreign body penetrating the eye, sprains, and fractures are just a few of the hazards that can cause or contribute to serious injuries. There were no major injuries or fatalities in 2021.

The IMSP03 procedure for 'Elimination, substitution, engineering controls, administrative controls, and Personal Protective Equipment (PPE)' is used to determine the control hierarchy. Corrective actions are recommended, and once completed within an agreed-upon time frame, the corrections are recorded and shared.

DEWA has implemented numerous measures to eliminate other work-related hazards and reduce risks through the use of the hierarchy of controls, which primarily include elimination, administrative controls, and the controlled use of personal protective equipment (PPE). DEWA's policies, rules, and acts apply to all employees, whether permanent, contractual, temporary, or outsourced.

People of Determination

To strengthen DEWA's position as a prominent, leading government organisation in Dubai, DEWA includes innovative initiatives to empower and employ People of Determination (POD). Each year, DEWA launches several corporate plans; and strategies that ensure an inclusive employment journey for its employees of determination to include them in the workplace and society. DEWA began its inclusion journey in 2015 and since then has met all government requirements for physical, information, and service accessibility, inclusive employment, and community initiatives for POD. DEWA's efforts are sustained through four strategic pillars: Employees, Customers, Society, and Partners.

DEWA has organised joint workshops, and training sessions for its Employees of Determination (EOD) in collaboration with the Ministry of Community Development. This is part of the MoU signed in 2020, in which the two entities' shared a common vision to strengthen inclusive employment and POD inclusion.

In 2021, the project management office at Business Support launched a significant initiative to empower POD to exceed their capabilities. One such success stories is the creation of an interactive news release by an EOD and distributed via an internal communication channel. DEWA has continued its efforts to create an inclusive environment for its employees by making all assistive technologies, reasonable accommodation, and special equipment available to its POD employees.

Inclusion & Empowerment of People of Determination

DEWA continued to contribute to the wise leadership's vision of including and empowering POD in 2021, in line with The National Policy to Empower People of Determination, launched by His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, to create an inclusive society that ensures empowerment and a decent life for People of Determination and their families. It also supports the 'My Community... a City for Everyone' initiative, launched by His Highness Sheikh Hamdan bin Mohammed bin Rashid Al Maktoum, Crown Prince of Dubai and Chairman of the Executive Council of Dubai, to transform Dubai into a city that is accessible to People of Determination.

DEWA has a dedicated section in Masdar Magazine, which is published on its website and app, as well as on its internal portal. This section promotes POD inclusion in society by highlighting best practices in DEWA. The organisation also held multiple awareness sessions to further transfer the knowledge and know-how of physical accessibility to public and private sectors for all internal and external, stakeholders that had the participation of 2,300 employees, 160 consultants and 25 POD personnel.

DEWA held a series of virtual sessions for its employees to enhance awareness of the organisation's pioneering role in incorporating and empowering people of determination (POD) to support their rights to equal employment opportunities at work and in society.

DEWA provided Employees of Determination (EOD) with alternative channels for working from a distance. The Abshir Office is a dedicated HR team for supporting the inclusion of EOD in the workplace and collaborates with other DEWA departments to ensure EOD engagement by coordinating and conducting 29 virtual activities, events, and workshops including (Emirati Women Day for 2021), events, sport competitions, and virtual lectures. Furthermore, 26 awareness circulations were sent to DEWA EOD on topics such as Safety Protocol Upon Returning to Work, Understanding and Coping with Stress Levels, How to Stay Happy and Healthy, Vaccine Booster Doses, FAQs about COVID-19 Vaccine, and others. Furthermore, outdoor activities such as the 'One Hour Walking Activity' and the 'EOD Happiness Event' for EOD were held, which were attended by them, their direct Managers, relatives, buddies "sadiqi", and DEWA's POD support team. As part of its ongoing efforts to empower EOD in the workplace and society, improve their psychological well-being, and protect them from the negative effects of COVID-19, 31 EOD Managers were trained on the updated guide in 2021, in addition to reviewing and developing "Abshir" office procedures and guidelines to provide additional support and a qualified and resilient environment that allows them to unleash their abilities and potential.

Employee Happiness conducted a lifestyle survey for EOD employees in 2021 in order to tailor programmes for their overall well-being. based on requirements, the Employee Counselling section scheduled a workshop on "yoga and meditation" for emotional well-being in June 2021, as well as a Cognitive Behavioural Therapy (CBT) workshop. Action plans have been developed to ensure that happiness programmes are delivered to all stakeholders, including DEWA Stores discounts, "Tejori" rewards, and special sports.

DEWA's capabilities as an inclusive institution have developed, with the total number of employees trained in how to deal with POD increasing from 6,137 in 2020 to 8,443 by 2021, with examples of courses added in 2021 including Skills on How To Deal With People Of Determination (smart learning), Coaching Skills For Managers/"Sadiqi" Of EOD, "Sanad" Toolkit (Arabic), Inclusion and Accommodation Awareness For POD. The number of employees with various disabilities determined by DEWA increased from 19 in 2017 to 35 in 2021. The happiness rate of POD employees in 2021 reached 99.33%, while the happiness rate of relatives of EOD reached 96.30%.

Promoting Emiratisation

DEWA is committed to promoting Emiratisation in order to achieve UAE 2021 Vision. DEWA intends to incorporate more nationals in the workforce with the most appropriate academic qualifications by a number of policies that have been implemented to that end.

This is achieved by initiating a number of supporting policies:

- DEWA's Emiratisation approach and commitment to delivering a positive work environment for national employees, including excellent learning and growth opportunities.
- National employees who show great performance at work and a long-term commitment to DEWA will be given unique career development opportunities to occupy key operational positions.
- **DEWA adopts the following policies to national employees in accordance with the Human Capital Policy:**
    - Attract and encourage Emiratis to join DEWA.
    - DEWA equips new employees with trainings and engagement with their coworkers to contribute to the organisation's strategic objective.
    - DEWA supports employees in professional development programmes to excel in their present and future positions.
    - DEWA provides its employees with the proper channels to give and receive feedback.
    - DEWA recognises and values its employee performance, and they are given a variety of tools/methods to recognise their success.
    - DEWA exclusively hires employees that are rated as 'High Potential' according to worldwide talent management standards, and then trains them to take over higher/different jobs as they become available.
    - DEWA provides opportunities for individuals to explore their career interests through career mobility systems such as cross-functional projects, job rotation, empowerment, and other means of professional exposure. As part of its talent retention strategy, DEWA pays financial and non-financial prizes to the most effective employees.

DEWA believes that investing in national employees and helping the upcoming generation in developing their careers is a priority to prepare tomorrow's leaders and the cornerstone of the sustainable development adopted by the wise leadership. During 2021, approximately 72.22% of newly hired employees were UAE nationals, who also made up 88.33% of top management and leadership positions, 60.16% of middle management positions, and 39.33% of its non-supervisory positions.

DEWA has completed its first intensive capacity build training programme to prepare Emirati experts for senior functional positions in leadership and excellence. This enables them gain skills in relevant corporate excellence and evaluation processes. The programme assists graduates in developing their divisions based on the government excellence system's criteria and requirements, as well as the Dubai Government Excellence Program (DGEP) of the General Secretariat of the Executive Council of Dubai. This is accomplished through the use of various assessment tools for continuous improvement.

Employee Happiness

DEWA places employee happiness within its strategic priorities. It learned from His Highness Sheikh Mohammed bin Rashid Al Maktoum, that employee happiness is essential to achieve community happiness. DEWA is a pioneer in this regard, with a core business support service for employees in the UAE and the establishment of the Employee Happiness Department in 2014. DEWA has worked to promote employee happiness and thus, raise the level of loyalty and belonging, and establish positivity as a fundamental value in the community. This supports the leadership's vision to make Dubai the happiest city in the world.

Child Care Centres

To help mothers balance their professional and personal lives, DEWA has Child Care Centres (CCC) for their children, during working hours. The happiness rate for DEWA CCC in 2020 was 98.73%. However, due to the pandemic, DEWA CCC operations were suspended and surveys were not been conducted in 2021. Instead, a Virtual Summer Camp which included competitions, sports, and entertainment for the children was organised. The satisfaction rate was 100%.

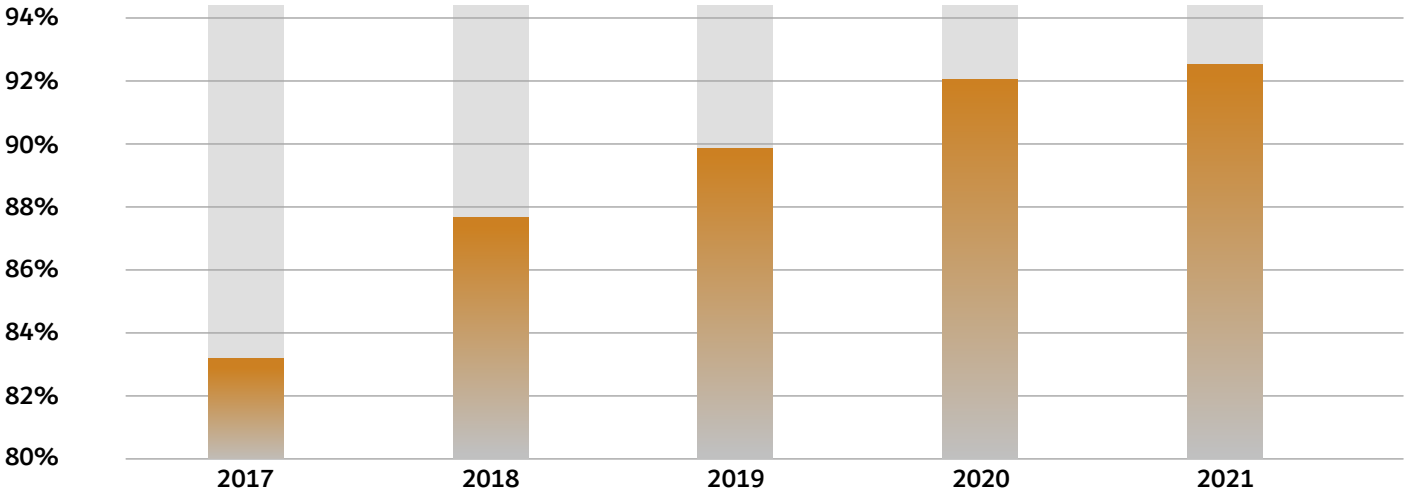
Tejori Al Sadaa

Tejori Al Saada is a reward programme for employees for their exceptional performance to reinforce and encourage through immediate recognition to foster a positive working environment. In addition to existing rewards such as time-off, DEWA Store vouchers, or cash gift cards; one-day Expo passes were introduced in 2021 as Tejori rewards. A total of 7,682 employees were rewarded from the spot recognition scheme.

DEWA Store

DEWA Store programme provides competitive offers and discounts for employees from various shops, hotels, and other services. In 2021, the programme focused on offers and discounts for essential services such as PCR tests, nurseries and schools. There was also a special 50% discount on Expo 2020 season passes for the employees.

Employee Happiness Score



Employee Happiness Survey

DEWA prioritises employee happiness as one of its strategic priorities. According to HH Sheikh Mohammed bin Rashid Al Maktoum, employee happiness is vital to achieve community happiness. DEWA's top management believes that having a happy and positive employee ensures the happiness of everyone who works with them. DEWA was a pioneer in the UAE in providing core business support services to employees, establishing the Employee Happiness Department in 2014. DEWA has worked to increase employee happiness, by increasing loyalty and belonging, increasing productivity, and establishing positivity as a fundamental value in the community.

DEWA provides a motivating work environment by launching numerous programmes to make their employees happy and meet their needs, which contributes to their overall happiness. DEWA's overall employee happiness score continues to improve. In 2021, DEWAs employee happiness reached 92.53% compared to 92.06% in 2020.

In 2021, DEWA held exit interviews with employees to find out the main reasons for their resignation to solve issues, if any. There were 207 resignations and 198 exit interviews. DEWA started post exit feedback to improve its processes for employee departures and provide employees an opportunity to share their experiences once they left DEWA for other jobs.

"Wesal"

Wesal is the greeting programme of DEWA for sharing and participating in any occasion or life events of the employees such as New Joiners, Umrah, Condolences, Confirmation, and Graduation. Wesal programme also provides various gifts for different occasions such as Hajj, Newborn Babies, and Marriage. In 2021, new categories such as Work Anniversary and Birthdays were added to "Wesal".

"Al Khair" Fund

DEWA also manages a co-operative fund programme, called the "Al Khair" Fund, to support employees in financial distress resulting from sudden emergencies. Subscription is open only to employees, and DEWA contributes AED 500,000 annually to the Al Khair Fund. In 2021, 753 staff received help from the Al Khair Fund.

"Barzatna" Programme

This is an outdoor annual gathering that is prepared and organised by several departments and divisions when required. These gatherings encourage a healthy and positive work atmosphere, and foster employee unity. Due to the pandemic, these gatherings were suspended in 2021.

Happiness Lounge

DEWA's Happiness Lounge is intended to enhance DEWA's employees brainstorming process, as well as to generate positive energy and a happy work atmosphere for employees. In 2021, DEWA added two new Happiness Lounges at its Warsan and Ruwaiya (Distribution Complex) locations.

Sports Committee

The DEWA Sports Committee encourages DEWA employees to participate in sports, to support physical achievement, and to improve their enjoyment and well-being. Internal inter-divisional sports tournaments are organised by the Sports Committee, which also promotes and supervises employees who represent DEWA in external contests.

"ESTISHARATI" DEWA Employee Assistance Programme

Estisharati (DEWA Employee Assistance Programme - EAP) is an employee-counselling programme designed to assist employees in living a happy, stress-free, and fulfilled life by providing an active problem-solving approach to handling the problems at hand. This helped raise employee engagement from 3% in 2018 to 17% in 2021. Employee trust and engagement is an international KPI for any EAP programme. "Estisharati" has won the International Business Excellence Award in Gold Category for providing emotional and holistic wellbeing support to employees with the best in class practices and latest technology in the field of wellness and mindfulness.

In 2021, the total number of employees engaged with "Estisharati" were 1989 across 4 events, representing 18% of employees. Employees took part in the employee of determination workshop, and 652 employees took the stress test where this program which is offered by DEWA to its employees to measures the high stress level. The number of participants in the engagement in in "Estisharati" was 1215, and 64 workshops were arranged by the Women's Committee.

Training and Career Development

Employee professional development is critical to the success of any organisation. Employees can readily access development materials to support their career objectives and grow their strategic skills and capacities through various training programmes in the areas of management and administrative skills, competencies development, IT-related courses, behavioural and supervisory skills, technical training; leadership development programmes as well as Health, Safety and Environment.

Average Training Hours per Employee

Grade/Year	2018	2019	2020	2021
Leadership	109.48	90.39	85.62	83.78
Management	49.31	55.73	52.96	51.00
Non-supervisory	41.11	43.77	42.83	46.30
Management	58.39	65.58	57.94	57.48

Average Training Hours by Gender

Gender/Year	2018	2019	2020	2021
Male	25.5	13.13	27.01	30.43
Female	54.2	141.14	65.88	62.40

'Cambridge For Her' Programme

DEWA collaborated with the Cambridge Institute for Sustainability Leadership to establish the 'Cambridge For Her' programme, which aims to prepare female leaders in all of DEWA's areas and specialisations.

In 2021, DEWA had 1,961 women in its workforce, 81.85% of them are Emirati. This includes 737 female engineers and technicians at DEWA. 50% of the Innovation Centre's employees are Emirati women, with most of them highly educated with scientific and engineering degrees.

DEWA empowers women and provides work environment that promotes working women and helps them balance their career and personal lives. This allows them to sustain their success, excellence, and effective engagement in the nation's development and the education of future generations.

Assessment and Development Centre

The Assessment and Devlopment Centre (A&DC) is a leader in the Middle East in the field of Assessment and Development Centres. It plays an important role in DEWA's "Enablers of Success" Sustainability goal. A&DC supports this goal by offering Assessment and Development Centres to objectively select and develop DEWA talent. The identification, development and retention of talent plays an important role in ensuring that DEWA achieves sustainable growth.

This required that A&DC continuously upgrade its operations and delivery, prompting A&DC to pursue and achieve the ISO 10667:1 Certification in Assessment Delivery.

A&DC's Assessment Centre have been designed to provide crucial information to hiring managers so that they may make better hiring selections. Their Development Centre are more focused on providing feedback sessions and finalising customised development plans with the Line Manager's assistance. Employees are given two years to progress with the support of their line managers.

A&DC use a variety of assessment tools and methodologies in line with ISO standards. Tools include psychometric tests to business simulation exercises, while leveraging internal expertise from expert assessors. This helps ensure that the process for identifying strengths and development areas is objective and targeted. Since its inception in 2016 it has assessed approximately 6000 people, averaging 1000 people a year.

Talent Management

DEWA believes that talent is the heart of sustainable organisation, building capable and competent workforce maintain the efficiency and productivity of any leading organization.

Based on that, Talent Management is responsible to ensure the implementation and quality assurance of the following processes:

Employee Development Journey (EDJ)

Talent management is responsible to prepare annual development plan based on pre-setcriteria to ensure identifying talent to reach their full potential, to accelerate their development journey.

Career Path

This process is designed to define Career Path logical progression opportunities from the current job to other jobs within the organisation in line with DEWA's organisational priorities.

Succession Planning

The purpose of the process is to:

- Identify critical roles that if left vacant it would have a significant impact on the organisation's ability to conduct normal business as per risk management process.
- Ensure the Successor's Readiness by empowering successors to reach their full potential, and accelerate their learning with targeted development plans

Competency Framework (BCF)

DEWA's competency framework is designed and linked to its strategy , corporate objectives, values and international benchmarking as they are categorised as per the following:

1 Behavioural Competency Framework (BCF):

- Unique set of expected behaviours to be displayed to meet current and future business goals.
- Behavioural Competencies are linked to all HR process such as development, performance management, Job description etc

2 Technical Competency Framework (TCF):

- Comprehensiveness framework designed as per divisional functions to support operational activities for that specific division as they are mapped to job description.

Career Conversation

- This engages employees and manager to give a clear idea about career path opportunities and possible support needed from their managers during their career journey.
- Managers gain insights into employee strengths, aspirations, and plans to make the best use of the talent on their team.

Employee Performance Management System

- It is a system used for measure employee performance based on pre-determined measurement standards.
- Performance management developed to orient employees about the standard of their performance and what is expected from in their future performance.

Measuring training effectiveness (ROI)

This tool measures the effectiveness of DEWA's investment in human resources development programs and the amount of return comparative to the investment cost by applying a reliable and best practices method.

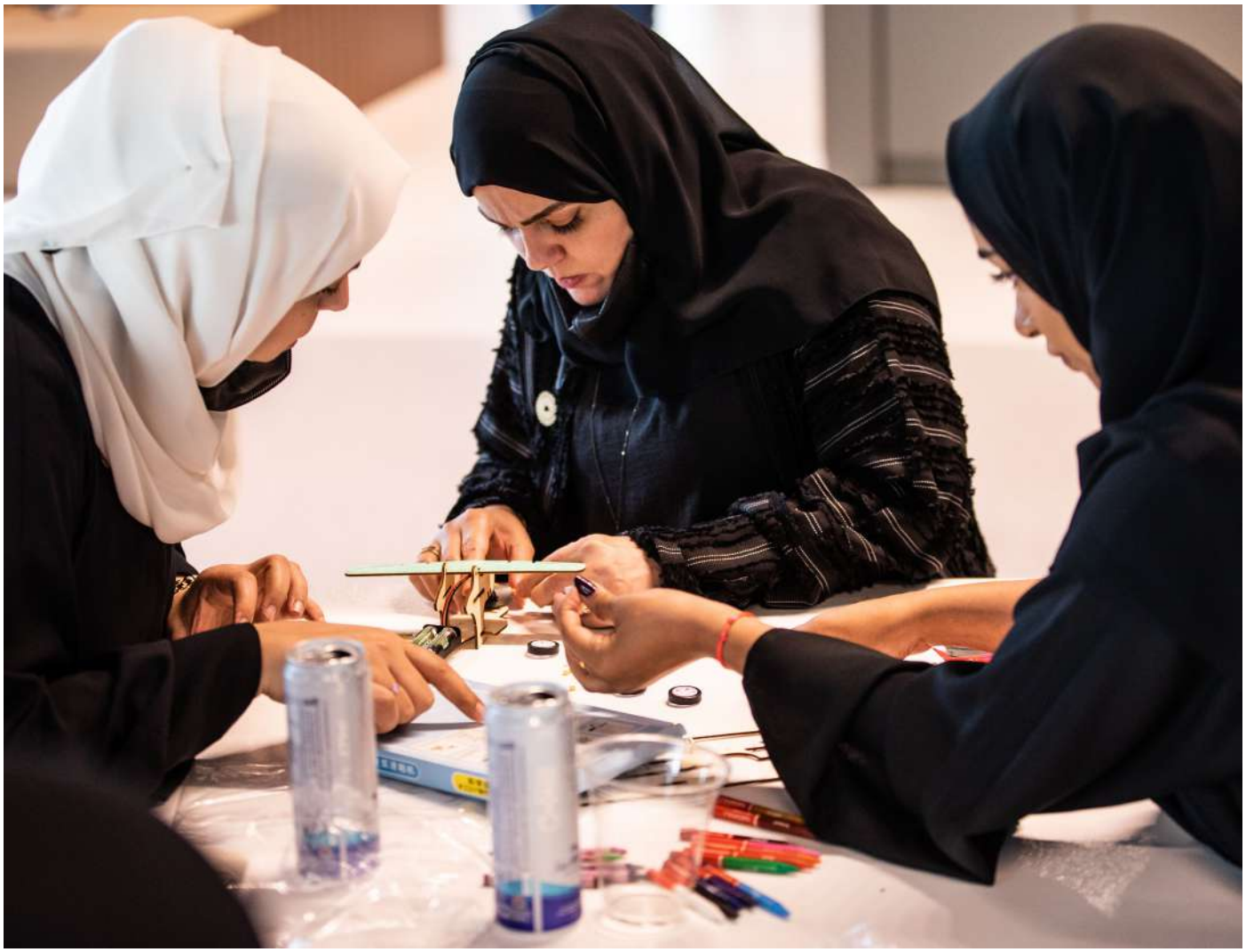
Fostering Innovation

In line with the National Innovation Strategy launched by His Highness Sheikh Mohammed bin Rashid Al Maktoum, to make the UAE one of the most innovative nations in the world, and the Dubai Innovation strategy to make Dubai the most innovative city in the world, DEWA maintained its position as one of the biggest supporters of innovation in the UAE and Dubai.

It was awarded the ISO 56002: 2019 in Innovation Management, becoming the first organisation in the world to receive this certificate. DEWA also received ISO 30401: 2018 certification in Knowledge Management Systems; becoming the first utility in the world to receive this certification.

DEWA promotes a culture of innovation among its employees; it adopts innovation in its work through an institutional approach and is moving steadily toward the future by building a sustainable future. DEWA also implements knowledge management activities and programmes in line with the directives of the Dubai Government and DEWA's vision, strategy, and global best practices based on accessibility, availability, accuracy, appropriateness, and sharing of knowledge. It is committed to supporting and developing a culture of creating, learning, sharing, and exchanging of knowledge among its employees, departments, and divisions, to support creativity, innovation, and excellence. The purpose of Knowledge Management is that an organisation's employees can use their skills, tools, and techniques to complete their respective job roles, to plan, implement and track knowledge-related initiatives and projects. DEWA has an integrated knowledge management system that includes a Knowledge Management policy, strategy, structure, and quality procedures to promote the growth of employee awareness, abilities, and practices through the following:

- Activities such as Knowledge Days, Knowledge Management training, Share an Hour, Annual "ShareK" Recognition Award, Communities of Practice, "Ma'rifa" Collaboration Platform, Expert Knowledge, Sessions, LinkedIn Learning, and the iAsk Reference & Research Service to promote the transfer of knowledge between individuals and groups.
- Access for all DEWA stakeholders to physical collections and creative spaces through the 7 DEWA Knowledge Centres, 6 Knowledge Chairs and 3 Reading Trees.
- DEWA Smart Library, Smart Office Application and DEWA Online Catalogue for all.



"Afkari"

One of DEWA's tools to foster innovation among its employees is "Afkari", its online ideation platform, which enables employees to submit their suggestions as well as enhance ideas from colleagues and vote for them. This promotes collaboration and sharing best practices. The platform provided a central repository to manage innovation, to ensure continuous improvement and innovation.

In 2021, DEWA received over 7,845 ideas through the "Afkari" internal platform. This brings the platform's total number of ideas received since 2015 to over 47,000 ideas. DEWA organised 9 campaigns, 86 workshops, and 78 brainstorming sessions in 2021 to encourage employees to participate in DEWA initiatives and projects, listen to their ideas, and study their suggestions.

DEWA uses this programme to foster and encourage an innovative culture among its employees and the rest of society. It considers innovation to be a key pillar of its work and corporate strategy. DEWA is consistently planning for the next 50 years and building a sustainable future. This will help the UAE achieve its Centennial 2071 goal of becoming the world's leading nation. The interaction between DEWA employees and the "Afkari" platform demonstrates that they are aware of their responsibilities and are committed to advancing public works and the work environment.

	2018	2019	2020	2021
Ideas	5157	7249	7053	7845
Participants Used the "Afkari" Platform	7064	7627	7645	7740
Proposed Ideas (cost savings)	AED 1.57 Million	AED 710 Thousand	AED 1 Billion	AED 247.078 Million
Cost Savings	AED 277 Million	AED 360 Million	AED 221 Million	AED 129 Million
Number of Implemented Ideas	350	360	616	893
Number of Ideas in Progress	1587	4997	2622	1820

DEWA has also established an innovation fund to support employees in implementing and developing creative ideas. Its Future Trends Platform, enables employees to access the most recent innovations from around the world. It demonstrates examples of innovation practices in various industries, as well as in products, services, technologies, and trending topics such as: digitalisation, cyber security, digital economy, smart society, and sustainability.

In addition, the Future Signal Catalogue has been made available. This database and communication platform enables employees to log, search, and share signals, which are anything that is already happening today that could signal the future.

"Ma'rifa" Collaboration Platform

Ma'rifa is a smart platform that aims to help employees collaborate online. It is a simple interface, where DEWA employees sign up to become part of a central knowledge bank to present their area of expertise, skill set, educational strength etc. The purpose of this platform is to enable employees highlight areas they're interested in learning more about, make themselves available to opportunities, allow employees to discuss and exchange knowledge virtually, support the exchange of ideas, cross functional collaboration and providing solutions in innovative way and to make it easy to find colleagues who can help them.

The platform has several organisational benefits, which are:

- Locate DEWA internal expertise in different domains and utilise them to collaborate and develop capabilities
- Enhance cross functional collaboration across DEWA's divisions
- Ensure knowledge sustainability
- Enhance individual productivity
- Accelerate business velocity
- Spread a culture of knowledge, sharing, learning, and innovation

The Number of Engagement Sessions Conducted

Year	Number of sessions conducted	Number of total attendees
2019	39	486
2020	33	842
2021	4	189

Ma'rifa Collaboration Platform has been identified as being creative and innovative by international bodies. It obtained the Ideas America award in 2020 in the Individual Category: Best Program Administrator (GOLD). Ma'rifa also won Silver Award in 13th Golden Bridge Awards Business and Innovation Awards.

DEWA's Smart Document System

The Smart Document system is a smart mobile application and the primary goal is to provide a variety of services and processes for DEWA employees, where all employees can easily access the application at any time and from any location to perform their day-to-day activities.

Smart Document Savings 2021

Number of procedures (completed)	1,347,849 documents archived (completed the workflow process)
Number of services (provided)	64 process automations (excluding the sub-processes or systems integrations)
Saving (AED)	AED 129,010,718.00 (estimated)
Paperless Strategy	100% achieved (this is a Smart Government initiative & not related to Smart Document specifically)

Case Study

Leaders of Change Programme

30 employees of DEWA enrolled in Leaders of Change Programme that was developed by Emirates Nature-WWF. They launched a volunteering programme which includes several modules and self-led volunteering activities for DEWA employees. Emirates Nature-WWF is an organisation that is committed to driving positive change in UAE in order to preserve the country's natural heritage. 'Leaders of Change' aims to empower, convene, and mobilise in order to support the UAE's sustainability agenda and deliver transformative impact at scale for the benefit of people and the planet as a local conservation think tank and volunteer platform. The volunteering programme provides training, networking, and volunteering opportunities to DEWA's employees in order to develop the professional skills required for workplace excellence. It takes volunteers through an enriching journey that would allow them to train, ideate, and act.

The Programme Aims to:

01 Demonstrate Employee Commitment to the UAE's Sustainability Agenda

02 Demonstrate Alignment with Employee Values

03 Encourage Volunteering

04 Support Employee Learning and Development

05 Provide Team Building in a Cost Efficient Manner

06 Promote Employee Happiness and Wellbeing

07 Fulfil Corporate Social Responsibility Objectives

08 Ensure Employees Achieve KPIs Faster

DEWA Employees have already contributed:

- 37 hours of their time to environmental protection
- 184 kgs of litter collected
- 9% goal of plastic waste collection reached
- 7% goal contributing to hours for nature
- 8000 m^2 of restored habitat area

The Leaders of Change programme, with the help of DEWA's employees will help preserve nature, strengthen climate action, ensure a green recovery, and improve food and water security.

Chapter 08

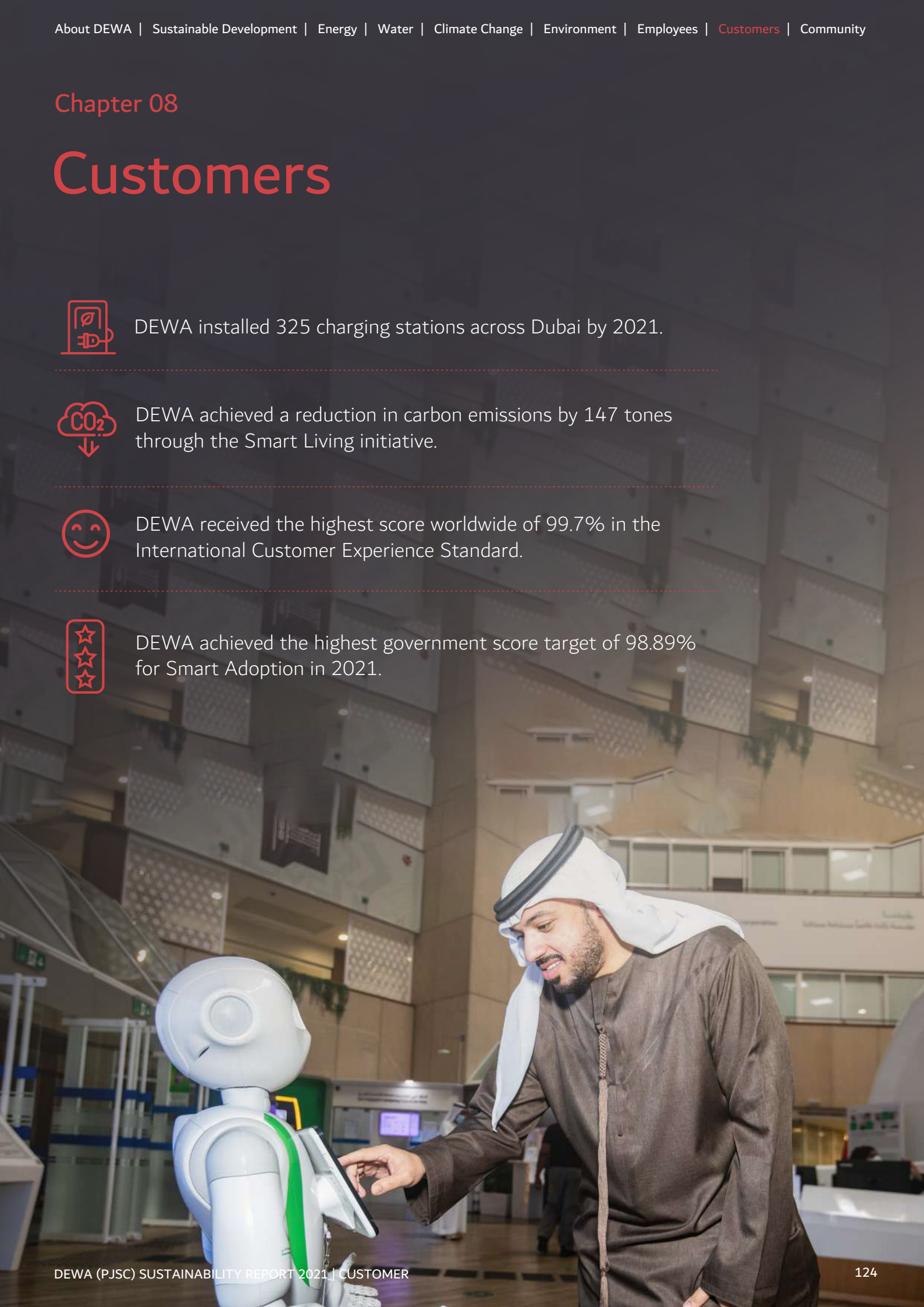
Customers

DEWA installed 325 charging stations across Dubai by 2021.

DEWA achieved a reduction in carbon emissions by 147 tones through the Smart Living initiative.

DEWA received the highest score worldwide of 99.7% in the International Customer Experience Standard.

DEWA achieved the highest government score target of 98.89% for Smart Adoption in 2021.



Management Approach (GRI 103-1, 103-2, 103-3)

DEWA's corporate strategy map includes the strategic objectives (SO2: Engaged & Happy Stakeholders) and (IP03: Leading Seamless Customer Experience), which are both connected with the Dubai Plan 2030 and the UAE Vision 2071. DEWA's strategy is centred on the satisfaction of all its stakeholders, particularly customers, as well as the goal of providing a sufficient and consistent supply of energy and water services at the highest standards of reliability, and availability to the residents of Dubai.

DEWA is committed to offering quality services to all customers. DEWA has tracked customer satisfaction to develop and implement a work mechanism that ensures a pleasant customer experience while also improving their quality of life, positivity, and well-being, as well as meeting and exceeding the community's demands and expectations.

DEWA's accomplishment of receiving the ISO certificates is a result of intensive efforts to achieve the happiness and satisfaction of customers by providing an environment which gives them priority, providing high-quality services and improving DEWA's ability to further develop customer services. DEWA strives to meet customer needs by working on innovative ways to elevate its service levels according to the highest standards of efficiency and reliability. DEWA also closely monitors the latest international developments in customer service, to further improve its services.

The ISO certificates reflect DEWA's ongoing efforts to adhere to the best global criteria for customer service, in accordance with clear guidelines and codes of conduct, customer charter, and customer complaints to increase customer happiness by upgrading the ISO 10000 series of standards successfully and upgrading to 2018 as follows:

1. ISO 10001: 2018 - DEWA Customer Happiness Department services pertaining to the Planning, Development Implementation and Measurements of Customer Happiness Charter.
2. ISO 10002: 2018 - DEWA Customer Happiness Department services pertaining to the Operation and Maintenance of the Unified e-Complain System for Complaint Handling and Resolution Process.
3. ISO 10003: 2018 - DEWA Customer Happiness Department services pertaining to the Internal Grievance Resolution Process of the Unified e-Complain System.
4. ISO 10004: 2018 - DEWA Customer Happiness Department services pertaining to the Planning Development, Operation and Maintenance of Monitoring & Measurement processes for Customer Happiness.

DEWA's Customers (EU3)

DEWA maintains a high standard of its services to exceed customer satisfaction. In 2021, DEWA has witnessed a growth in customer accounts with an increase of 41% and 44% for electricity and water accounts, respectively compared to 2016. Total number of customer accounts for electricity reached to 1,061,476, whereas for water customer accounts reached 960,032 across all categories, including: (UAE Nationals, Expatriates, Commercial, Government Organisations, Industrial, and Electric Vehicles).

Total Number of Customer Accounts (2018-2021)

	Total Water Customers	Total Electricity Customers
2018	750,172	844,216
2019	816,580	915,623
2020	884,404	990,258
2021	960,032	1,061,476

Customer Happiness Framework

Building on DEWA strive towards "A Globally Leading Sustainable Innovative Corporation", DEWA adopted consistent approach in achieving its strategic directives, represented through defined set of balanced objectives, where stakeholders' happiness, particularly customers' happiness and experience, constitutes a main focus. DEWA succeeded in adopting a state-of-art Customer Happiness Framework, aligned with Dubai and DEWA's Strategy, focusing on: Collecting Customers' insights/needs, designing convenient services/products, delivering them through targeted channels ensuring omni-channel experience, measuring Customer Experience through consolidated and continuously improved set of tools, improving continuously DEWA services and channels.

Operational Excellence (GRI 103-1, 103-2, 103-3, EU10, EU28, EU29, EU30)

Over the years, DEWA worked hard to enhance its services and operations to be one of the first government organizations to provide electricity and water services according to the highest standards of availability, reliability, and efficiency in order to meet the growing demand on energy and water within the emirate of Dubai. In 2021, DEWA achieved the highest score of 100% in the latest International Customer Experience standard (ICXS2021) for 2021 provided by the International Customer Experience Institute.

Through its customer Centres, DEWA is providing a wide range of pioneering services and solutions through Interactive Voice System (IVR) enhanced by AI and available around the clock to response to customers' needs and requests.

Moreover, DEWA has adopted several international standards to validate its performance excellence such as System Average Interruption Frequency Index (SAIFI), Availability Factor (AF) and Customer Minutes Loss (CML).

System Average Interruption Frequency Index (SAIFI)

The System Average Interruption Frequency Index (SAIFI) indicates the number of electricity interruptions experienced by a customer in a year on average. It is calculated as the sum of customers affected by each interruption during a year divided by the total number of customers. SAIFI is a prominent index to monitor the frequency of customer interruptions. In 2021, DEWA recorded a Forced SAIFI score of 0.059 against the target of 0.062, while Planned SAIFI contribution was 0.061 against the target of 0.128

SAIFI Target and Actual 2017-2021

Year	Target	Actual
2017	0.105	0.100
2018	0.095	0.092
2019	0.087	0.071
2020	0.064	0.064
2021	**0.062**	**0.059**

SAIDI & CML

The SAIDI "System Average Interruption Duration" [also known as Customer Minutes Lost (CML)] index indicates the total duration of interruption due to forced and planned outages for the average customer during a predefined period. SAIDI (CML) is a prominent index monitored and calculated separately for forced and planned cases in DEWA. In 2021, DEWA achieved 1.43 minutes against the target of 1.6 minutes for the Forced SAIDI, compared to around 15 minutes recorded by leading utility companies in the European Union. This results from DEWA adopting the latest global technologies in energy generation, transmission, and distribution.

CML Target & Actual 2017-2021

Year	Target	Actual
2017	3.00	2.68
2018	2.55	2.39
2019	2.35	1.86
2020	1.66	1.66
2021	**1.6**	**1.43**

Availability Factor (AF)

Availability Factor (AF) measures the percentage of time that DEWA plants are available to produce power. AF is important, especially during summer because of the greater demand for electricity during this season. In 2021, DEWA's availability factor was 99.66% for the summer period, while DEWA's annual availability factor was 92.35% due to maintenance conducted in the winter period.

Year	Availability Factor (Summer) Target	Availability Factor (Summer) Actual	Availability Factor (Annual) Target	Availability Factor (Annual) Actual
2017	98.50%	99.16%	88.00%	91.29%
2018	98.50%	99.46%	91.50%	91.72%
2019	98.50%	99.18%	92.00%	92.10%
2020	98.50%	99.73%	92.00%	92.28%
2021	**98.50%**	**99.66%**	**92.00%**	**92.35%**

Smart Adoption for DEWA's Services

DEWA is using the latest disruptive technologies and AI tools in order to make its services available round the clock through various channels, electronic and smart platforms according to the highest standards of availability, reliability and efficiency. Thus, this will enable its customers to complete their transactions and enrich their experience with smart services anytime and anywhere, easily, and securely.

DEWA was one of the first government entities that completed its digital transformation in 2014. In 2021, the smart adoption rate of DEWA's services reached 98.89% compared to its target of 98.50%. Through its digital services, DEWA has achieved AED 184,782,874 of savings in 2021.

In 2021, DEWA received the 100% Paperless Stamp from Smart Dubai, in recognition of its success in completing the digital transformation of all its operations and services by 100%.

Rammas

DEWA is the first government organisation to launch Rammas virtual assistant to serve customers and answer their enquiries in both Arabic and English around the clock. Rammas (meaning "talkative") is designed to solve the challenges faced by DEWA customers at the Call Centre. Rammas is designed to simulate a live agent to assist different types of DEWA customers while continuing to learn and understand their needs based on their enquiries, offer transactional and informational services, and provide two ways of seamless interaction either by menu selection or direct questions. Rammas is available to respond to customers instantly on DEWA's smart app, and website, Amazon's Alexa Service, Robots and Google Assistant. Rammas is also available on DEWA's social media channels like Facebook and WhatsApp.

The purpose of Rammas is to increase customer happiness, increase digital channels adoption and provide services around the clock. Customer segments covered in Rammas include:

Partners, Suppliers, Governments, General guests, Contractors, Job seekers and Consumers. From its launch until end of 2021, Rammas responded to over 5 million questions as used by DEWA customers.

The Environmental Impact of Rammas

Year	Total Payment transaction	Total cost saving	Total tree saved	CO^2 emissions reduction
2019	2,688	AED 37,380,766	13,734	2,747 Tons
2020	5,882	AED 48,301	17,455	3,491 Tons
2021	6,875	AED 18,153,428	7,054	1,402.52 Tons

DEWA's Smart Living initiative

DEWA's Smart Living initiative enables its customers to monitor their consumption easily and make smart decisions to reduce consumption and live a happier life. The Smart Living initiative was built on smart grid data, AI, and partnerships with the public and private sectors to help customers understand, monitor, and conserve their consumption instantly and proactively.

This avoids any unexpected consumption increase. Customers can log into their DEWA accounts on the website or smart app, update their Consumption Pattern file, check their digital dashboards to monitor consumption, know more about residential customer tariff slabs, and get conservation tips.
It has many features that are provided to the customer such as:

Bill Explanation

Understand the details of a customer's bill to better manage their consumption.
The Bill Explanation can be found in this link:

https://www.dewa.gov.ae/en/consumer/billing/understand-bill

High Water Usage Alert

The 'High Water Usage Alert' is part of the Smart Response initiative to help customers discover any leakage in the water connections after the meter. DEWA is responsible for connections and maintenance up to the meter, while the customer is responsible for internal connections after the meter. This applies to the residential, commercial, and industrial sectors.

DEWA's High-Water Usage Alert is the best way to discover water leakages as it sends notifications to customers of any high-water usage that could indicate possible internal water leakage. This helps them to follow up on required maintenance and make Dubai greener. Leakages can also be discovered through DEWA's bills or smart meters.

My Sustainable Living Programme

My Sustainable Living Programme (MSLP) is the first programme of its kind in the Middle East and dedicated for residential customers in Dubai. The purpose of the programme is to reduce water and electricity usage to adopt a sustainable lifestyle.

It aligns with the Dubai Demand Side Management Strategy 2030 which aims reduce electricity & water consumption by 30% by 2030. The programme helps the customer to regularly check, compare and monitor his/her electricity and water consumption in comparison with similar efficient homes in their area. The programme has different unique features that help them conserve their electricity and water consumption.
These include:

A control dashboard through which you can compare your consumption with similar homes in your area

A consumption profile that allows you to update your details for more accurate comparison

A monthly report on your electricity and water consumption

Tips to help you take positive steps towards conservation

DEWA Store

DEWA Store is an innovative initiative from DEWA for its customers that is launched in 2018. It allows all DEWA customers to redeem offers from different outlets depending on their category. The offers are exclusive to DEWA customers, who can only redeem them through the DEWA Mobile App available on (Apple iOS, Android systems).

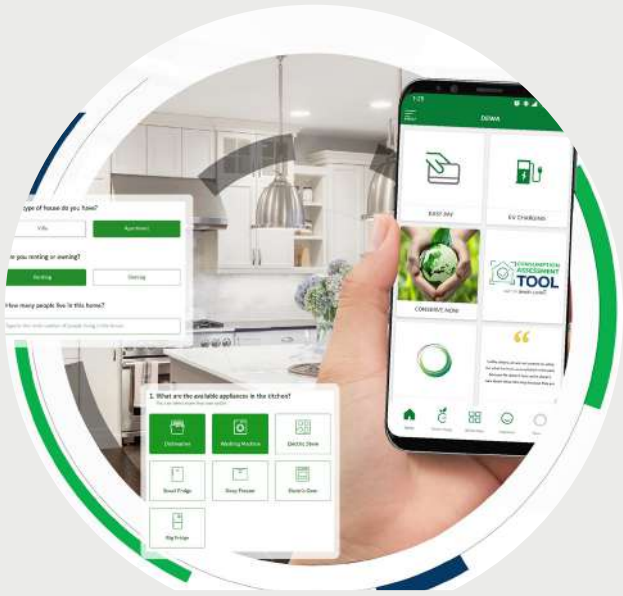
Away Mode

This new innovative service enables residential customers to monitor their electricity and water use when they are not at home. Consumption details are sent by email on a daily or weekly basis. Customers with smart electricity and water meters can activate this service through their accounts on DEWA's website and smart app.

They can also select the activation period to receive daily or weekly data by email. Customers can activate "Away Mode" through Apple Watch to get notifications of unusual consumption when travelling or away from home. They can learn about the latest news, discounts and offers on DEWA Store for energy and water-saving devices as well. DEWA's smart app on Apple Watches has been a feature since 2015.

Let's Make This Summer Green Campaign

DEWA's 'Let's Make This Summer Green Campaign', organized for the 6th consecutive year, has achieved remarkable success in raising customer awareness on adopting a sustainable and smart lifestyle to make a positive impact on the environment. The campaign was organized under the theme 'Create memories that last forever' through DEWA's social media, internal and external channels. DEWA encouraged customers to use its services and innovative features on its website and smart app to monitor and control their electricity and water use and get tips on reducing consumption. We target all the POD Centres during this initiative by spreading the campaign tips and circulate all the marketing materials to their Centres.



Electric Vehicles (EV) Green Charger Initiative

The Electric Vehicle Green Charger Initiative was launched to support HH Sheikh Mohammed bin Rashid Al Maktoum's vision to make Dubai the smartest and happiest city in the world and to promote green transportation. This initiative was the first public charging infrastructure for electric vehicles in the region. In 2015, DEWA installed 100 electric vehicle charging stations in highly frequented areas across the city, to encourage electric vehicle adoption in Dubai. Since then, the network has expanded to 325 chargers across Dubai and DEWA previously launched a series of free charging incentives on its network to further encourage green mobility within the city. DEWA's EV Green Chargers are smart units which are connected through a Charge Point Management System (CPMS) with status and locations of chargers available via the DEWA app. DEWA has also launched a QR code service for its registered electric vehicle customers to allow them to start and end their charge cycles via a card-less customer experience. DEWA also provides its EV charging service to non-registered EV Green Charger using the 'Guest Mode' feature. The EV Green Charger User Dashboard was launched to help customers better manage their EV Green Charger services. The dashboard enables customers to easily track their charging and consumption data through DEWA's website or smart app. The dashboard provides customers with a complete record of bill payments, consumption information, charging transactions and dates, as well as access to exclusive

discounts from DEWA store. It also allows customers to manage multiple EV Green Charger cards, pay their bills, and locate the nearest DEWA charging station from more than 325 charging stations across Dubai.

For more information on EV green charger initiative, see the link below:

https://www.dewa.gov.ae/en/consumer/ev-community/ev-green-charger

Shams Dubai Calculator

Shams Dubai Calculator allows customers to estimate potential electricity production and saving on electricity bill by installing photovoltaic panels under the Shams Dubai initiative. The Shams Dubai initiative launched by DEWA to encourage household and building owners to install PV panels to generate electricity and connect them to DEWA's grid. Estimates of electricity production are based on geographic location, local objects such as buildings that can cast a shade on solar panels, and on solar panel placement characteristics such as orientation and angle. Electricity production of an actual solar panel installation will depend on detailed system design, equipment used, and frequency of cleaning, and will can be different from estimates.
For more information on Shams Dubai Calculator, please visit the following link:

https://www.dewa.gov.ae/SolarCalculator/index.html

Smart Response Service

Smart Response is an innovative initiative to enhance "attending Electricity/Water technical incidents" service. It targets all DEWA business & individual customers, with special focus on Senior Citizens, People of Determination and People on life-support equipment. DEWA's Smart Response initiative, available in five languages, provides customers with information and tools to improve the availability of supply and enhance the quality of life. It provides a better customer experience by making it easier to report electricity and water technical interruptions, fixing them and simplifying the accuracy and ease of reporting. It also enables the customers to follow-up on their report status. The Smart Response also enables customers to do self-diagnosis using DEWA's smart app and increasing the response rate using AI, Geographic Information Systems (GIS), Virtual Reality and the automatic task distribution system. This is in addition to notifying customers proactively in case of potential water leakage, to verify them and take the necessary action.
The initiative has reduced the number of steps required to fix interruptions from 10 steps to only 1 step as well as reducing the number of field visits by DEWA's technicians by 55% and reducing the duration of fixing interruptions by 45%. This has increased the service quality by 95% and customers' trust by 96.5%. Stakeholders' happiness with the initiative reached 95% whilst technical water complaints decreased by 47% between 2013 and 2021, from 1.63% to 0.86%. DEWA's total savings are estimated to be 5.4 million dirhams.

Customer Care Centre

DEWA used its state-of-the-art digital infrastructure, including AI which is part of the digital transformation map at DEWA, to turn its Customer Care Centre into a pioneering, interactive digital Centre, to enrich customer experience for seamless transactions on multiple channels. The Centre is an addition to DEWA's smart channels for customers to complete their transactions anytime and anywhere. DEWA also provides all its services on its smart app and website.

The interactive digital Centre provides a wide range of pioneering services and solutions through Interactive Voice System (IVR)

enhanced by AI and available around the clock. This includes procedural services and information services for customers to submit electricity and water requests, EV green charger services and the Smart Living dashboard to get information on all DEWA's services. The constantly updated digital database identifies different customer segments such as People of Determination, senior citizens, customers with special medical cases, and others, thus prioritising calls to provide the highest standards of professionalism and quality in service. These efforts have helped the Customer Care Centre receive the ISO 18295-2017 in 2020 for managing Customer Care Centres as follows:

Part 1: Providing in-bound call services for DEWA customers through telephone and email.

Part 2: Deployment of call centre services for providing seamless customer experience through telephone and email.

DEWA's Customer Care Centre operates 24/7, including on public holidays, to answer customer enquiries and requests through calls and email customercare@dewa.gov.ae. In 2021, the Service Quality Level – Call Centre reached 96.21% comparing to its target 95% and the abandoned call rate for its Call Centre reached to 0.87% comparing to its target of 1.50%.

Transformation of Customer Care Centres

In line with the vision of HH Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, and the objectives of UAE 2071, which aims to make the UAE the world's leading nation, DEWA has spared no effort in enhancing customer experience by speeding up and simplifying procedures; providing digital, innovative, and quick services, as well as simple, integrated, and interconnected systems through its smart channels, at any time, and in accordance with the best quality, availability, and reliability.

DEWA places a high priority on providing a seamless experience in customer service and aims to take customer happiness to new heights, setting new benchmarks for international standards.

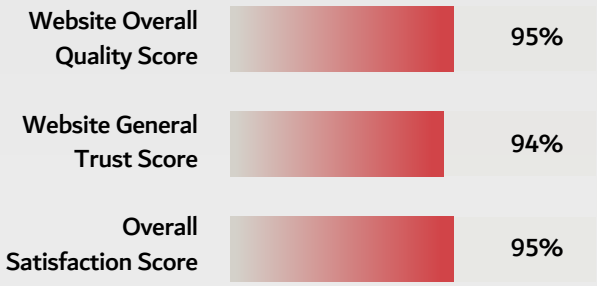
The Purpose of the initiative is to achieve operational & performance excellence, comply with worldwide standards, improve customer and employee happiness, seamless customer experience, employee empowerment and equip the customer care centres with the latest technology empowered by AI. DEWA launched various smart and innovative initiatives to boost customer happiness, enhance services and to improve digital adoption. One of the key initiatives is to transform the Customer Care Centre to an Integrated Digital Interactive Hub.

Taking an omnichannel approach by integrating voice, video, chat and more, the design of its new contact center will focus on empowering DEWA's agents to be far more productive when it comes to delivering stellar customer experiences every time. With technologies that augment the use of AI and self-service, the new The call Centre will enable DEWA employees to deliver higher levels of performance, by these technologies, including conversational AI, speech analytics, and integration with a range of channels.

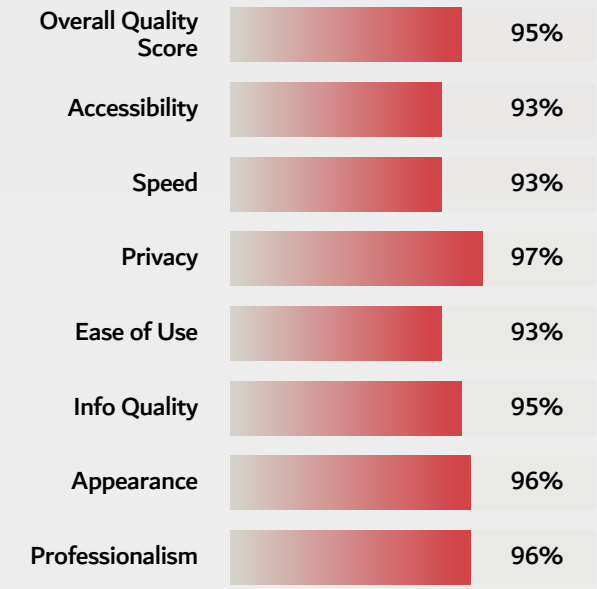
Omni-Channel and Multi-Experience capability assists in providing insightful data for decision making, reporting and enhanced customer experience measurement capabilities. AI powered features like the dynamic self-service menu and priority routing based on customer account status and customer type such as POD and senior citizens enable DEWA to priorities various customers. Real sentiment analysis through transcribing all voice calls to text, with customized grouping facilities to monitor and identify the area of improvement and empower employees to proactively engage with customers resolving their concerns efficiently. The performance indicators used to measure outcomes by Service Quality Level, Abandoned rate and Instant Customer Satisfaction Survey. Achieved by the initiative is Seamless customer experience through integrated omnichannel experience, which will improve customer happiness and feedback, increase number of self-service capabilities which contributes to enhance the digital adoption strategy. Also, it Instant customer satisfaction survey against each touchpoint Improve the service quality Full customer 360 graphical display of customer journey across all channels with previous interactions that can assist staff to be better prepared to handle Customers.

2021 DEWA Customer Experience Results – Consumer Services

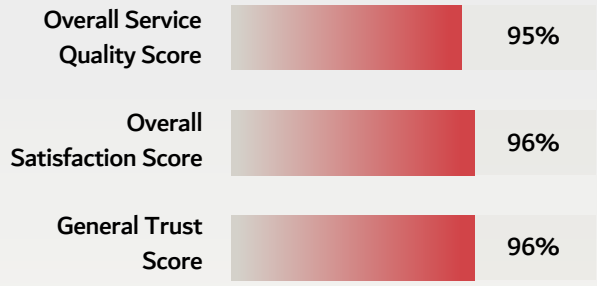
2021 Customer Experience Results – Website



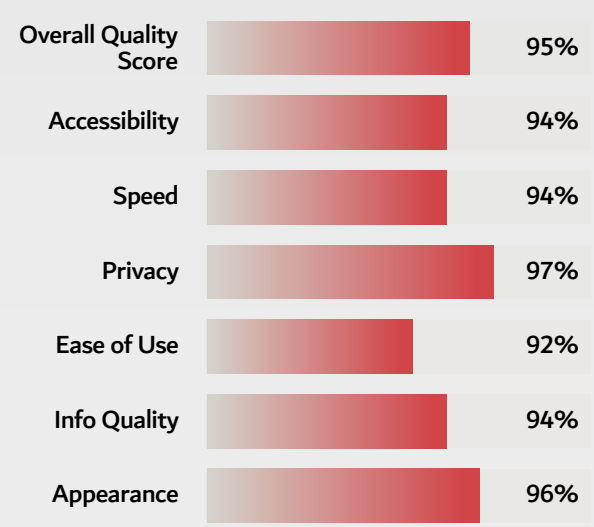
2021 Service Quality Score Vs. Attributes - Website



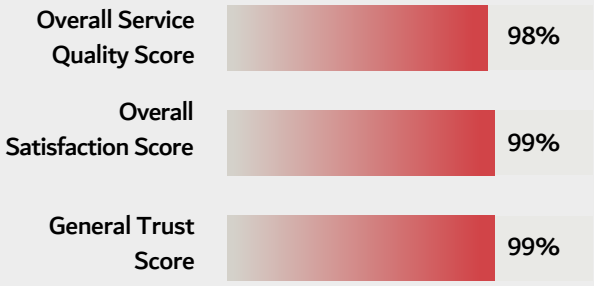
2021 Customer Experience Results - Smart Application



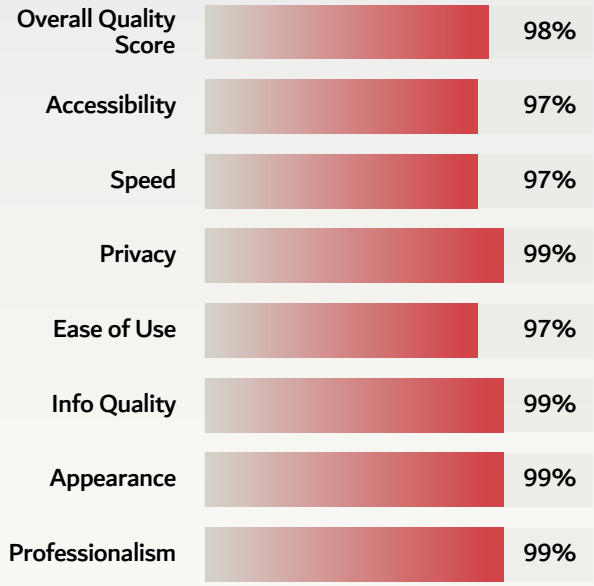
2021 Service Quality Score Vs. Attributes - Smart Application



2021 Customer Experience Results - Self-service Customer Happiness Centres



2021 Service Quality Score Vs. Attributes - Self-service Customer Happiness Centres



Multiple Touch Points for Customer Needs

Ash'ir (Live Video Chat using Sign Language for People of Determination with Hearing Impairment)

DEWA is the first Government organisation to launch "Ashír" which is a live video chat service using sign language that enables customers with hearing impairments to communicate directly with the Customer Care Centre 24/7. This service is available 24/7 on DEWA's Smart App for iOS and Android platforms.

Hayak (Live Chat)

Hayak is an online text chat with option of video chat service that allows customers to directly communicate with DEWA's call Centre agents 24/7. This service is available on DEWA's smart app and website.

Interactive Voice Response (IVR)

The interactive digital Centre provides a wide range of pioneering services and solutions through IVR enhanced by AI and available around the clock. This includes procedural services and information services for customers to submit electricity and water requests, EV green charger services and the Smart Living dashboard to get information on all DEWA's services. The constantly updated digital database identifies different customer segments such as People of Determination, senior citizens,

nursing, and others, thus prioritising calls to provide the highest standards of professionalism and quality in service.

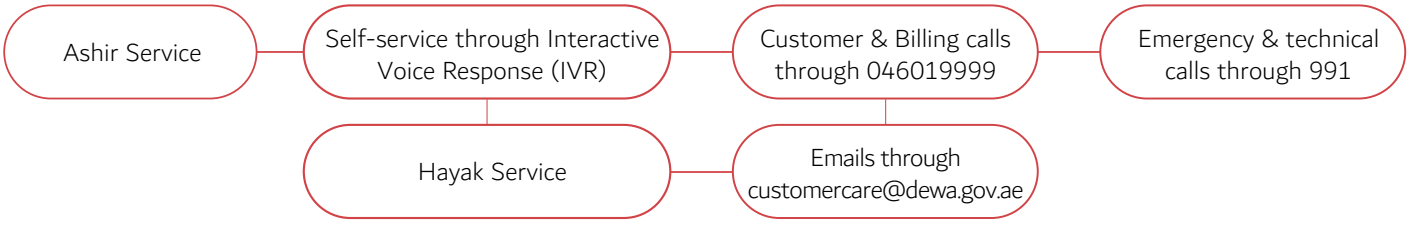
Customer Care Centre on 04-6019999

Despite the challenges associated with the COVID-19 pandemic worldwide, DEWA maintained its workflow and journey for customer happiness, without compromising health and safety.

Customer Care Centre on 991

DEWA has a dedicated Number "991" for Electricity & Water Technical Notifications, emergency as well as for getting Electricity Supply for Tents.

Email Customer Care Centre at customercare@dewa.gov.ae.



Customer Complaints & Suggestions

In 2021, the Customer Happiness Department resolved 100% of customer complaints within 3 working days, while it resolved 100% within 7 working days. Furthermore, 100% of customer suggestions were responded within 3 working days, and consequently 100% within 15 working days.

Customer Happiness Centre (Self-Service)

Across Dubai, DEWA has two self-service Centres, one located in the Head Office Customer Happiness Centre and the other one located in Al Quoz Customer Happiness Centre as well as Three Future Happiness Centres (Burj Nahar, Al Twar Centre and Ibn Battuta Mall).

Features of Self-Service Customer Happiness Centres

DEWA converted all its customer happiness Centres into smart digital self-service Centres. This was supported by its state-of-the-art digital infrastructure:

- All Customer Happiness Centres are fully accessible and equipped with facilities for People of Determination with various disabilities.
- Educational materials and videos uploaded on smart channels for easy reference to customers.
- DEWA has maintained the 'Internationally Distinguished Services' classification.
- The Future Happiness Centres enable customers to perform all their transactions using smart devices, supported by Customer Happiness staff assisting customers remotely through virtual screens.
- DEWA has focused its efforts on enhancing customer happiness by saving their time and further improving service quality.

People Of Determination POD Dashboard

DEWA has also developed a "POD dashboard" web-based GIS application that displays a density map of real time location of POD customers and notifications related to People of Determination across Dubai to prioritise & expedite them in service delivery. In addition, DEWA has launched campaigns and tutorial videos in sign language for PODs to educate them on how to apply for various Smart Services through DEWA website Furthermore, DEWA conducted more than 8 virtual awareness sessions to increase POD customer knowledge and encourage them to adopt smart services.

Engagement with Customers of Determination

In 2021, DEWA engaged extensively with Customers and Employees of Determination, DEWA collected their insights on several aspects such as: the look & feel of Customer Happiness Centres , accessibilities features, the ease of the Customer Experience and Journey at these Centres. This was done through focus groups, social media, service agents, benchmarking and engaging with targeted customers, prior to the implementation of the initiative and marketing. DEWA has achieved competitive results in global benchmarking and shared its expertise with more than 20 governmental and private entities. In addition to the above, DEWA provides discounts on service charges to People of Determination for Sanad Card holders (UAE Nationals), for activation and de-activation of electricity and water, meter inspection and update of customer information. It also facilitates the access of information to People of Determination on DEWA Website and Smart Application in line with Smart Dubai Standards in addition to international standards.

Response to Covid-19

DEWA continued its proactive and agile approach by seamlessly running all its operations with the same measures that were implemented following the spread of the Covid-19 virus to fulfil its objectives and to meet the set KPIs.

It ensured service continuity with the highest standard of customer and employee safety, by implementing social distancing measures, mandatory use of masks and placing sanitisers at all its Centres, including regular sanitisation of all its premises to ensure the well-being of its customers and employees.

All DEWA Customer Happiness Centres were transformed into Self-Service Platforms that utilise remote solutions and state-of-the-art digital infrastructure to facilitate customer requirements through multiple digital channels, aiming to achieve an enhanced customer experience and happiness. DEWA's integrated plans for crisis management and business continuity, together with its advanced digital solutions have ensured the provision of services according to the highest standards of availability, reliability, and efficiency.

DGEP Mystery Shopper

DGEP Mystery Shopper study is part of the Dubai Government Excellence Program, which evaluates the service quality of various government entities. The purpose of the study is to measure the happiness of customers with the performance of government entities in providing services through the Mystery Shopper study through several channels: visits, calls, website, and smart application.

The questionnaire was designed in accordance with the best practices and, the results are displayed on a live dashboard created for the government entities to take on the spot corrective and preventive action, to provide a high-quality service that exceeds customers' expectations. DEWA scored 99.17% in the year 2021.

Instant Happiness Meter of Digital Dubai Authority

The Happiness Meter is one of Dubai's first strategic 'smart city' initiatives. As the world's first, city-wide, live sentiment capture engine, the meter represents a measurement tool for the happiness goal. The tool captures customer happiness levels of DEWA customers from DEWA's website, mobile app and happiness Centres. The results are presented in a unified dashboard for all Dubai entities which is developed and maintained by Digital Dubai Authority.

Overall, the Happiness Meter presents the easiest interface towards the user who can mark one of three cases, (1) happy, (2) neutral, (3) unhappy, generating simple but valuable feedback towards the goal of "making Dubai the happiest city on earth".

DEWA achieved the highest score among Dubai's big government entities for five consecutive years since 2017, and scored 97.9% in the year 2021 as the highest score among all Dubai entities.

Customer Creativity Lab

Creativity Lab is a session conducted with DEWA Customers to discuss customers' needs and expectations. The session organized to engage with the customers and walk them through the projects & enhancements in Customer Experience with DEWA services across all channels. DEWA organised a Creativity Lab for its customers, to support its ongoing efforts to achieve the Dubai Plan 2021 to be a pioneering and excellent government that is proactive and creative in meeting the needs of individuals and society. This also supports DEWA's efforts to increase awareness about its strategic direction and the standards of excellence, based on the objectives set by the fourth-generation government excellence system.

This improves government work based on innovative standards. It also includes a brainstorming session, and highlights Dubai's model, and DEWA's efforts to implement its services according to the highest international standards and achieve sustainability.

Customer Happiness Delivery Standard

The Customer Happiness Delivery Standards includes a set of guiding principles for employees, defining DEWA's level and quality of services that customers can expect.

To achieve customer happiness, this guideline commits all DEWA employees to comply with every applicable part of the specified service standards. DEWA is also responsible for implementing all related policies as per this the Delivery Standards.

Interactive DEWA Services Guide

The DEWA Services Guide has been transformed into an interactive online guide listing comprehensive information about all services offered, including other vital information for customers. The guide is available on DEWA's website and smart app.

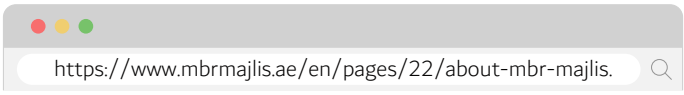
Innovative Mechanisms

DEWA adopts a solid approach to identify and understand customer needs and expectations. The innovative channels and tools communicate with stakeholders, including customers, to get their feedback and translate them into services that exceed their expectations. Employees see the customer feedback as necessary tools for continuous development of DEWA services and achieving its vision to become a globally leading sustainable innovative corporation. DEWA welcomes customer feedback and suggestions and handles them swiftly to find appropriate solutions that achieve their satisfaction level. DEWA adopts innovative and effective mechanisms in responding to complaints to achieve customers' happiness and improve the quality of services. DEWA has several channels to communicate with customers and the public. These include the Dubai Government Unified Complaints Portal, the Dubai Government Unified Suggestions Portal, DEWA's website and smart app, surveys and focus groups, and creativity labs, among others.

DEWA received 290 ideas from customer through MBR- E Suggest Platforms.

MBR- E Suggest Platforms: MBR Smart Majlis, is an electronic platform that allows everyone to participate, share ideas and create solutions, improving the city of Dubai, and positioning it years ahead as the most innovative city in the world.

Please find below link for more details about MBR- E Suggest Platforms:



DEWA's Efforts in Converting Building Facilities & Services for People of Determination

DEWA supports the design of the urban environment, and the people of Dubai, and the empowerment of People of Determination to become more productive and effective. This is done by providing its Customers of Determination with easy access to its services, buildings, and facilities, including its Customer Happiness Centres. In 2021, DEWA continued its efforts in converting all its newly constructed buildings and facilities to be compliant 100% with the Dubai Universal Design Code. In addition, DEWA has been certified to be in conformance with the international ISO standard 21542:2021 Building Construction – Accessibility and Usability of the Built Environment, further highlighting DEWA's continuous efforts in attaining the highest standards in the wellbeing of the built environment users.

DEWA is committed to providing seamless access to information for Customers of Determination through its website, and smart app according to Digital Dubai standards. DEWA has created a dedicated section on its website to include and empower People of Determination. DEWA's website compliance scored 100% while the smart app was scored 10/10 by the People of Determination Accessibility Evaluation Report by Digital Dubai 2021.

The website accessibility measures include colour changes to suit colour-blind customers: the ability to increase font size to facilitate reading for people with visual impairment; text-to-speech; image description which enables customers with special needs to click on the image to get its details; and shortcut feature that reduces the size of readable materials and facilitates navigation between the pages. DEWA's smart app supports most platforms and features the latest technologies available on handsets and smartphones.In 2021, Customers Happiness Index for People of Determination with DEWA's inclusive services reached 95.09% compared to the target 94%.

DEWA's buildings have been equipped for all emergencies by placing audio and visual alarms, alarms in toilets, and evacuation wheelchairs on all floors. All DEWA's Customer Happiness Centres (Self-Service) provide many inclusive services and facilities for People of Determination such as: Special parking with dedicated help line for assistance, customised entrances, wheelchair service, directional tactile paving for people with visual-impairments, staff trained and certified in sign language, dedicated virtual screens to communicate with People of Determination, DEWA's booklets in Braille, tactile map with voice notifications, hearing loop technology, which is an advanced hearing aid technology designed to assist people with hearing disabilities. In addition, DEWA videos are also available in sign language. Customer Happiness staff are also present to guide and educate People of Determination on how to use digital services. These are just some of the facilities DEWA provides to streamline services and access for People of Determination.

Case Study

Duroob GIS Field Mobile Solution

Duroob is an Arabic name for 'pathways'. It is the digital mapping solution that guides the Field Engineering team to view over-ground / underground electricity & water features, analyse, navigate, redline and collect live data from the field. Duroob field engineers are able to use rugged handhelds, equipped with secure network coverage to perform maintenance, operational and planning activities through the value chain of DEWA in four core divisions: Transmission Power (TP); Distribution Power (DP); Water & Civil (W&C) and Power & Water Planning (P&WP), with a total of 1,800 users, and has been used over 14,000 times. Duroob supports the following capabilities:

Digital Transformation of Field Operations – Provide interactive maps with more than 1.4 million assets, with ability to view attributes in real-time, and navigate to assets.

Digital Transformation of Workflows – Ability to perform the work using rugged handhelds, with complete cycle of capturing assets or editing assets in the field without the need to refer to back-office. This enable the staff to perform the job faster in one step only.

Efficient Data Collection - Enables field workers to easily perform accurate data collection, in a single source of trust. It instantly feeds data into the system for recording, streamlining life cycle management and supporting informed decision-making.

Navigation & Crew Tracking Ability – It has a navigation facility for observation and performs inspections to find crew near the substations.

The key sustainability outcomes and the benefits achieved by the initiative:

- **Reduction of Printed Paper: 1, 646, 349 paper saved per year**
- **CO_2 Carbon Emission reduction: 290 tonnes saved per year**
- **Trees: 196 trees saved per year**
- **6,136 man-day savings per year**
- **Improved productivity six times faster than the previous time**
- **Raised field staff happiness from 89% to 94%**

Chapter 09

Community

28 Social and humanitarian initiatives in 2021

16,859 Volunteering Hours

DEWA's CSR efforts over the last few years helped increase the community's satisfaction and happiness from 82% in 2013 to 94.10% by the end of 2021

Management Approach (GRI 103-1, 103-2, 103-3)

During 2021, DEWA continued its efforts to enhance its long term commitments to society and its social responsibility through ambitious initiatives, programmes, and projects. This is accomplished through concrete goals that focus on the economic, social and environmental aspects of sustainability. DEWA creates sustainable impact at the local and global level by supporting and giving back to society through various projects and initiatives that follow a clear CSR policy with an integrated framework, that is aligned with the local regulations and laws, as well as international best practices. DEWA's social projects and initiatives are in line with the UAE Vision 2071, Dubai Plan 2030, and DEWA Strategy 2021. DEWA also aims to exceed society's satisfaction and expectations. To achieve that, DEWA ensures updating its strategy and framework based on community essentials and needs. DEWA's commitment to its social responsibility is evident in its allocation of more than 7.07% of its revenues to social initiatives.

Our Initiatives: From DEWA to the Community (GRI 413-1,EU22)

Instilling a Culture of Volunteerism Among Employees

DEWA's role goes beyond providing electricity and water services with the highest standards of efficiency, accountability, and reliability to the Emirate, but also raising the profile of the UAE and Dubai in global humanitarianism and volunteerism. Volunteering is rooted in Emirati society and represents a civilised approach that stems from the foundations of the UAE.

In this regard, DEWA is committed to promoting volunteerism among its employees as a national and humanitarian duty. DEWA launched 28 social and humanitarian initiatives in 2021 and its employees have contributed 16,859 volunteering hours of their own time during the year. Even in these exceptional circumstances due to the COVID-19 pandemic, a large number of DEWA employees volunteered to support the first line of defence. They proved their readiness, commitment to training, and followed all precautionary measures. In recognition of their efforts, Watani Al Emarat Foundation honoured DEWA for its role in the success of the Foundation's COVID-19 campaign which demonstrated the strong solidarity and cohesion of Emirati society.

In addition, 177 employees from DEWA volunteered for EXPO 2020 Dubai during the period October 2021 – March 2022 with 44,760 voluntary hours.

Promoting Inclusion and Empowerment of People of Determination

DEWA has been proactive in creating an inclusive society that includes and empowers People Of Determination through initiatives and programmes that ensure a decent life for them and their families. DEWA works within the framework of the National Policy for Empowering People of Determination, launched by His Highness Sheikh Mohammed bin Rashid Al Maktoum, that allows them to unleash their potential and prove their capabilities.

DEWA implemented and sponsored several corporate social responsibility programmes and initiatives. Between 2015 and 2021, there were 71 such initiatives that reached out to 3,484,998 people. The Society Happiness score for DEWA's support to POD in 2021 reached 93.91% compared to 93.52% in 2020.

Summer Camp for People of Determination

DEWA organised a virtual summer camp for POD in line with the precautionary measures to deal with the COVID-19 pandemic. At the end of the course, the participating students took part in a virtual ceremony. DEWA's Society Happiness department conducted an awareness session on disability etiquette for DEWA volunteers. It also held over 2-hour online awareness sessions for all DEWA divisions over 1 week. This covered how they can work with different categories of POD.

National Day Programme

DEWA had a two-day programme for National Day (22-23 November, 2021) that included a field visit to the Union Museum, for POD, orphans, and school students.

On World Arabic Language Day in December 2021, DEWA conducted a workshop for Students of Determination. The workshop included interactive activities that enhance and improve cognitive development, motor skills and thinking and increase self-confidence for POD.

Students of Determination at DEWA Academy

After approving and publishing the DEWA's Inclusive Education Policy for POD in 2020, DEWA Academy worked on following up with graduate students of Determination. This included updating the registration and admission procedures, as well as the recruitment procedures for students of determination, adding the accessibility features to the Academy website as per Digital Dubai accessibility standards, and raising the awareness of parents of students to deal with POD in light of the COVID-19 crisis and protecting their children from COVID-19.

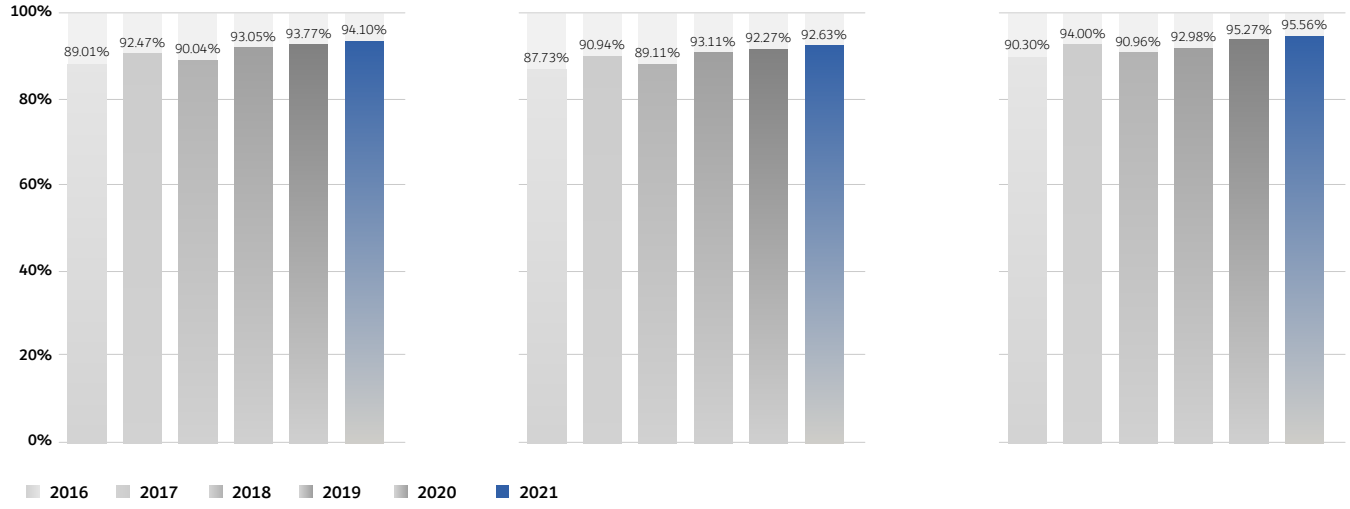
The Academy also continues to operate as per the requirements of the Knowledge and Human Development Authority and the Inclusive Education Manual approved by Dubai government.

Overall Society Happiness Scores

Overall Society Happiness 2021: **94.10%**

Overall Community Category Happiness 2021: **92.63%**

Overall Business Category Happiness 2021: **95.56%**



DEWA Sponsors and Participates in Ramadan Aman 2021

In reflecting the social unity and philanthropy that the Founding Fathers have instilled in the UAE community, DEWA sponsored the Ramadan Aman 2021 campaign organised by Al Ihsan Charity Association, Ajman.

The campaign aims to deliver Iftar meals for families with limited income as well as People of Determination, with the help of volunteers using their own vehicles with sealed Iftar meal boxes, following the health and safety standards and all precautionary measures.

DEWA's sponsorship of the campaign is part of its commitment to promote volunteering among staff as a national and humanitarian duty. Employees recorded these hours, despite the pandemic, reflecting their readiness to take responsibility and commit to all preventive measures.

The Ramadan Aman campaign aimed to distribute more than 2,000 meals with an average of 60,000 Iftar meals during Ramadan.

Clean Up The World – Supporting Local Environmental Campaigns

In cooperation with Dubai Municipality, 50 employees volunteered and participated in the annual 'Clean up the World 2021' campaign, under the mission of 'Supporting Local Environmental Action to Make a World of Difference'. The campaign aimed to raise awareness among members of society about environmental issues, including reducing the waste generated and its negative effects.

Al Rayan Masjid, World's First Mosque to Receive LEED Platinum Rating for Green Buildings

In striving to follow the highest sustainability and efficiency standards, and in accordance with the Dubai 2040 Urban Master Plan launched by His Highness Sheikh Mohammed bin Rashid Al Maktoum, DEWA has invested in and initiated the world's first mosque to receive the Platinum Rating for green buildings by the Leadership for Energy and Environmental Design (LEED v4) from the US Green Buildings Council (USGBC) with 83 points. This is part of Dubai's efforts to adopt sustainability best practices to meet the social, economic, and environmental development of Hatta. The mosque comprises of a 25-metre-high minaret, car and motor bicycle parking, facilities for People of Determination, and a green charger station.

The mosque conserves around 25.6% Energy Saving (based on ASHRAE 90.1 -2007 Baseline Energy Code), excluding the savings from renewable energy and around 55% indoor water saving based on LEED. It can accommodate more than 600 worshippers on an area of 1,050 square metres meeting the international sustainability standards and achieving high levels of efficiency.

DEWA's Youth Council and 2021 Achievements

The goal of the Youth Council at DEWA is to magnify the voice of the youth by promoting an inclusive and empowering environment. The Council continues to raise the ideas and concerns of the youth, as well as to showcase their skills and talents through initiatives that address their concern and support DEWA's sustainable development efforts.

The Council's strategy is based on five main themes: National Identity and Values, Continued Education, Professional Development, Future Accelerators and Innovation, and Sustainability.

"Youth to The Community Day" For Schools in Dubai

DEWA's Youth Council and volunteers are committed to help in raising awareness about DEWA's efforts and educating the younger generation about the importance of sustainability to ensure a bright future for the upcoming generations. During DEWA Sustainability Week 2021, the Youth Council dedicated a day to educating the school students in Dubai about the importance of sustainability, energy and water conservation and protection of natural resources. The Council held virtual presentations for students and teachers of different public and private schools in Dubai.

Case Study

Solar Decathlon Middle East

Solar Decathlon Middle East (SDME) is organised under the patronage of HH Sheikh Hamdan bin Mohammed bin Rashid Al Maktoum, Crown Prince of Dubai and Chairman of Dubai Executive Council. The Dubai Supreme Council of Energy, DEWA, and the US Department of Energy signed an agreement to collaborate on the development of SDME in 2018 and 2021. DEWA has dedicated over 60,000 square metres for the competition at the Mohammed bin Rashid Al Maktoum Solar Park in Seih Al Dahl in Dubai. SDME is an international competition for university students to design, build, operate solar powered houses. All the proposals focus on solving the issues and needs for sustainable living in the Middle East, with high temperatures, high humidity, and dust conditions.

A total of 8 teams representing 11 universities from 5 countries took part in the 2nd SDME from October 24 to November 25, 2021.

1. Team SCUTxCSCEC Science & Industry 2020 SDME - South China University of Technology
2. Team Sharjah - University of Sharjah
3. Team Go Smart - University of Bahrain
4. Team KU - Khalifa University
5. Team Harmony - The British University in Dubai
6. Team Tawazun - Manipal Academy of Higher Education
7. Team Desert Phoenix - University of Louisville, Higher Colleges of Technology, American University in Dubai, American University in Sharjah
8. Team ESTEEM - Heriot-Watt University UK

Winners of SDME 2021

Team SCUTxCCSIC of the South China University of Technology took first place; Team Sharjah of the University of Sharjah came second, and Team Go Smart, University of Bahrain, was third.

Team SCUTxCSCEC

Team SCUTxCCSIC from the South China University of Technology submitted a sustainable design inspired by traditional houses in the region. The team developed the traditional MENA patio into a smart patio that adapts to weather changes, maximising the ability to harness sun, wind, and water to provide residents with power and water, with reduced consumption and maximum energy efficiency.

Solar photovoltaic bifacial panels were used to shade the house from direct sunlight, capture and store solar power from the roof to generate electricity. The team also added technologies to treat rain and dirty water to reuse it for irrigation of the patio.

Team Sharjah

The outer skin of the building consisted of a dynamic fence that surrounded the house not only creating a layer of privacy when closed but also serving as a solar tracker for the bifacial PV modules. This design of the moving envelope assists passive cooling strategies by opening the side of the house that is not exposed to direct sun, while shading the opposite side. The interior smart and flexible design promoted the innovative use of the house, allowing the living space to transform into a FabLab/workshop.

Team Go Smart - University of Bahrain

The University of Bahrain's team, Go Smart developed a house based on the traditional Middle Eastern structure and design, with a modern-day twist on ventilation and natural lighting, to achieve sustainability.

They implemented an architectural design that was nostalgic, with a high level of functionality in structure and systems, with flexible spaces for privacy and interchangeability. These are adaptive to the occupants' needs through maximum elimination of solid walls.

GRI

Content Index

GRI COMMUNITY MEMBER 2022

We are a member of the GRI Community and support the mission of GRI to empower decision makers everywhere, through GRI Sustainability Reporting Standards and its multi-stakeholder network, to take action towards a more sustainable economy and world.

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GRI 103 Management Approach 2016	103-1	Explanation of the material topic and its boundary	58-68	7.1
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GRI G4 Sector Disclosures 2013 Electric Utilities	EU 10	Planned capacity against projected electricity demand over the long term by energy source	56, 126	7.1; 9.1; 9.4
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GRI 103 Management Approach 2016	103-1	Explanation of the material topic and its boundary	13	
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Energy				
GRI 103 Management Approach 2016	103-1	Explanation of the material topic and its boundary	55	8.4
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	302-4	Reduction of energy consumption	96-99	7.1; 7.2; 7.3; 7a; 7b; 8.2; 8.4; 12.2; 12.8; 13.1; 13.2; 13.3
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GRI 103 Management Approach 2016	103-1	Explanation of the material topic and its boundary	78	6.4; 6.5; 12.2
	103-2	The management approach and its components	78	6.4; 6.5; 12.2
	103-3	Evaluation of the management approach	78	6.4; 6.5; 12.2
GRI 303 Water & Effluents 2018	303-1	Interactions with water as a shared resource	72	6.3; 6.4; 6.5; 6a; 6b; 12.4; 12.5
	303-2	Management of water discharge-related impact	78	3.9; 6.3; 12.4
	303-3	Water withdrawal	72	6.4; 6.6; 14.3
	303-4	Water discharge	78	3.9; 6.3; 6.4; 6.5; 12.4; 12.5
	303-5	Water consumption	81	12.2; 6.1; 6.4

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GRI 103 Management Approach 2016	103-1	Explanation of the material topic and its boundary	84	3.9; 13.1
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GRI 305 Emissions 2016	305-1	Direct (Scope 1) GHG emissions	87	3.9; 12.4; 12c; 13.1; 13.2; 13.3; 13b; 14.1; 14.3; 15.1; 15.2
	305-2	Energy indirect (Scope 2) GHG emissions	No Power Purchased during 2021	3.9; 12.4; 12c; 13.1; 13.2; 13.3; 13b; 14.1; 14.3; 15.1; 15.2
	305-4	GHG emissions intensity	87, 94	3.9; 12.4; 12c; 13.1; 13.2; 13.3; 13b; 14.1; 14.3; 15.1; 15.2
	305-5	Reduction of GHG emissions	87, 94	3.9; 12.4; 13.1; 13.2; 13.3; 13b; 14.3; 15.1; 15.3
	305-7	Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions	94	3.9; 12.4; 12c; 13.2; 14.1; 14.3; 15.1; 15.2
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GRI 306 Waste 2020	306-1	Waste generation and significant waste-related impacts	93	3.9; 6.3; 6.6; 11.6; 12.4; 12.5; 14.2
	306-2	Management of significant waste-related impacts	93	3.9; 6.3; 8.4; 11.6; 12.4; 12.5
	306-3	Waste generated	93	3.9; 6.6; 11.6; 12.4; 12.5; 15.1
	306-4	Waste diverted from disposal	93	3.9; 6.3; 11.6; 12.4; 12.5; 14.1
	306-5	Waste directed to disposal	93	3.9; 6.3; 6.6; 11.6; 12.4; 12.5; 14.1; 15.1
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GRI 103 Management Approach 2016	103-1	Explanation of the material topic and its boundary	92	
	103-2	The management approach and its components	92	
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GRI 307 Environmental Compliance	307-1	Non-compliance with environmental laws and regulations	In 2021, DEWA was not in violation of any environmental regulations nor did it receive any complaints relating to environmental matters.	16.3; 16.6; 16.7
Climate Change				
GRI 103 Management Approach 2016	103-1	Explanation of the material topic and its boundary	84	
	103-2	The management approach and its components	84	
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GRI 103 Management Approach 2016	103-1	Explanation of the material topic and its boundary	84	
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Non GRI Disclosure		Renewable energy technologies	59-60, 65-66	
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GRI 103 Management Approach 2016	103-1	Explanation of the material topic and its boundary	101	8.8
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	103-3	Evaluation of the management approach	101	8.8
GRI 401 Employment 2016	401-1	New employee hires and employee turnover	101-105	5.1; 5.5; 5a; 5b; 8.2; 8.3; 8.5; 8.6; 8.8; 10.2; 10.3; 10.4
	401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	106-107, 116-117	3.2; 3.8; 3c; 5.4; 8.2; 8.3; 8.5
	401-3	Parental leave	107	5.1; 5.4; 5.5; 5a; 5c; 8.2; 8.3; 8.5; 8.8
GRI G4 Sector Disclosures 2013 Electric Utilities	EU15	Percentage of employees eligible to retire in the next 5 and 10 years broken down by job category and by region	105	8.3; 8.5
Occupational Health & Safety				
GRI 103 Management Approach 2016	103-1	Explanation of the material topic and its boundary	108	8.8
	103-2	The management approach and its components	108	8.8
	103-3	Evaluation of the management approach	108	8.8
GRI 403 Occupational Health & Safety	403-1	Occupational health and safety management system	108	8.8
	403-2	Hazard identification, risk assessment, and incident investigation	108	3.8; 3.9; 3c; 8.8
	403-3	Occupational health services	109	3.7; 3.8; 8.2; 8.3; 8.5; 8.8
	403-4	Worker participation, consultation, and communication on occupational health and safety	109	8.8, 16.7
	403-5	Worker training on occupational health and safety	110-112	8.2; 8.3; 8.5; 8.8
	403-6	Promotion of worker health Prevention and mitigation of occupational health and safety impacts directly linked by business relationship	111	3.3; 3.5; 3.7; 3.8
	403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationship	112-113	8.2; 8.3; 8.5; 8.8
	403-9	Work-related injuries	112-113	3.6; 3.9; 8.8; 16.1
	403-10	Work-related ill-health	112-113	
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GRI 103 Management Approach 2016	103-1	Explanation of the material topic and its boundary	101	
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GRI 412 Human Righ Assessment	412 - 1	Operations that have been subject to human rights reviews or impact assessments	101	16.5; 16.6; 16.7; 16b
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GRI 103 Management Approach 2016	103-1	Explanation of the material topic and its boundary	140	
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GRI G4 Sector Disclosures 2013 Electric Utilities	EU22	Number of people physically or economically displaced and compensation, broken down by type of project	140-141	2.2

Customer Health and Safety				
GRI 103 Management Approach 2016	103-1	Explanation of the material topic and its boundary	125	
	103-2	The management approach and its components	125	
	103-3	Evaluation of the management approach	125	
GRI 416 Customer Health and Safety	416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	No incidents of non-compliance reported during 2021	16.3
GRI G4 Sector Disclosures 2013 Electric Utilities	EU 25	Number of injuries and fatalities to the public involving company assets, including legal judgments, settlements and pending legal cases of diseases	There is no work related fatalities during 2021	
Socio-economic Compliance				
GRI 103 Management Approach 2016	103-1	Explanation of the material topic and its boundary	19, 36	
	103-2	The management approach and its components Evaluation of the management approach	19, 36	
	103-3	Non-compliance with laws and regulations in the social and economic area	19, 36	
GRI 419 Socioeconomic Compliance 2016	419-1	Non-compliance with laws and regulations in the social and economic area	No significant monetary or non-monetary sanctions for non-compliance with the laws and regulations in the social and economic area	16.3
Disaster/Emergency Planning & Response				
GRI 103 Management Approach 2016	103-1	Explanation of the material topic and its boundary	29-30	
	103-2	The management approach and its components	29-30	
	103-3	Evaluation of the management approach	29-30	
GRI G4 Sector Disclosures 2013 Electric Utilities		Management Approach	29-30	1.5; 11.5; 11.6
Access				
GRI 103 Management Approach 2016	103-1	Explanation of the material topic and its boundary	125-131	
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		Management approach: programmes, including in partnership with government, to improve or maintain access to electricity and customer support services	125-131	1.4; 7.1; 11.1
GRI G4 Sector Disclosures 2013 Electric Utilities	EU26	Percentage of Population unserved in licensed distribution or serviced area	0%	1.4; 7.1; 11.1
	EU28	Power outage frequency	126-128	1.4; 7.1
	EU29	Average power outage duration	126-128	1.4; 7.1
	EU30	Average plant availability factor by energy source and by regulatory regime	126-128	1.4; 7.1

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GRI G4 Sector Disclosures 2013 Electric Utilities	103-1	Management approach: practices to address language, cultural, low literacy and disability related barriers to accessing and safely using electricity and customer support services	114-115, 134-136, 137	

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GRI G4 Sector Disclosures 2013 Electric Utilities	103-1	Explanation of the material topic and its boundary	125-129, 132-133	
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Acronyms

4IR	Fourth Industrial Revolution
A&DC	Assessment and Development Centre
AF	Availability Factor
AGP	Advanced Gas Path
AI	Artificial Intelligence
AMI	Advanced Metering Infrastructure
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
ASR	Aquifer Storage and Recovery
BAIR	Berkeley Artificial Intelligence Research Lab
BAU	Business As Usual
BCF	Behavioural Competency Framework
BCP	Business Continuity Planning
BD&E	Business Development & Excellence
BI	Business Intelligence
BIA	Business Impact Analysis
BIPV	Building-Integrated Photovoltaics
BS&HR	Business Support & Human Resources
BSC	Balanced Scorecard
BSI	British Standards Institution
CC&S	Climate Change & Sustainability department
CCC	Crisis Command Centre
CDM	Clean Development Mechanism
CEO	Chief Executive Officer
CER	Certified Emission Reduction
CMC	Crisis Management Committee
CO2	Carbon dioxide
COSO	Corporate Governance for State Owned
CSP	Concentrated Solar Power
CSR	Corporate Social Responsibility
DAF	Dissolved Air Flotation
DCAS	Dubai Carbon Abatement Strategy
DCES	Dubai Clean Energy Strategy

DER	Distributed Energy Resources
DEWA (PJSC)	Dubai Electricity and Water Authority (Public Joint-Stock Company)
DFO	Diesel Fuel Oil
DGF	Dubai Green Fund
DLN	Dry-Low NOx
DMF	Dual Media Filter
DP	Distribution Power Division
DSCE	Dubai Supreme Council of Energy
DSM	Demand Side Management Strategy
DUSUP	Dubai Supply Authority
EAP	Employee Assistance Programme
EMS	Energy Management System
ENG	Emirates National Grid
EOD	Employees of Determination
EPMS	Employee Performance Management System
ERM	Enterprise Risk Management
EV	Electric Vehicle
GHG	Greenhouse Gas
GIS	Geographic Information Systems
GRC	Governance, Risk & Compliance
GRE	Glass-Reinforced Epoxy
GRRC	Group Risk & Resilience Committee
HR	Human Resources
HRSGs	Heat Recovery Steam Generators
I&TF	Innovation & The Future Division
IBH	Inlet Bleed Heating
IFRS	International Financial Reporting Standards
IMS	Integrated Management System
IMSP	Integrated Management System Procedure
IoT	Internet of Things
IPP	Independent Power Producer
i-RECs	International Renewable Energy Credits
ISO	International Organization for Standardization
IVR	Interactive Voice System
KG	Kilograms
KPI	Key Performance Indicator
kV	Voltage Category
kWh	kilowatt hour
LEED	Leadership in Energy and Environmental Design
Li-Ion	Lithium-ion
LPG	Liquefied petroleum gas
MD	Managing Director
MENA	Middle East and North Africa
MFO	Medium Fuel Oil
Mg/L	Milligram Per Litre
MIG	Million Imperial Gallons
MIGD	Million Imperial Gallons per Day
MMBtu	Metric Million British Thermal Unit
MRV	Monitoring, Reporting and Verification
MSF	Multi-Stage Flash
MSLP	My Sustainable Living Programme
MtCO2 e	Metric tons of CO2 equivalent
MVA	Megavolt-amperes
MW	Megawatt

MWh	Megawatts per hour
NaS	Sodium-Sulfur
NCEMA	National Emergency Crisis and Disaster Management Authority
NG	Natural Gas
NOx	Nitrogen oxides
ODS	Ozone Depleting Substances
OH&S	Occupational Health & Safety
OTF	Outdoor Test Facility
P&WP	Power & Water Planning Division
PCR	Polymerase Chain Reaction
PMO	Project Management Office
POD	People of Determination
PPEs	Personal Protective Equipment
PPM	Parts Per Million
PPMVD	Parts Per Million by volume
PV	Photovoltaic
PVRO	Photovoltaic and Reverse Osmosis
QHSE	Quality, Health, Safety, and Environment
R&D	Research and Development
R-22	Refrigerant 22
RO	Reverse Osmosis
RTA	Roads and Traffic Authority
RTU	Remote Terminal Unit
S&GC	Strategy & Government Communication
SAIDI	System Average Interruption Duration Index
SAIFI	System Average Interruption Frequency Index
SCADA	Supervisory Control and Data Acquisition
SCI	Sustainability Culture Indicator
SDGs	Sustainable Development Goals
SDME	Solar Decathlon Middle East
SDMS	The Smart Distribution Management System
SF6	Sulphur hexafluoride
SGI	Smart Grid Integration
SLT	Sustainability Leading Team
SMEs	Small & Medium Enterprise
SO2	Sulphur Dioxide
SOMS	Security Operation Management System
SWRO	Sea Water Reverse Osmosis
T&D	Transmission and Distribution
TCF	Technical Competency Framework
TDS	Total Dissolved Solids
TEC	The Executive Council
TESTIAC	Thermal Energy Storage Turbine Inlet Air cooling
TP	Transmission Power Division
TSE	Treated Sewerage Effluent
UAE	United Arab Emirates
UFW	Unaccounted for Water
UNFCCC	United Nation's Framework Convention on Climate Change
UNGC	UN Global Compact
UNSDGs	United Nations Sustainable Development Goals
USGBC	United States Green Buildings Council
VPP	Virtual Power Plants
W&C	Water & Civil Division
WEF	World Economic Forum
WHO	World Health Organization
WWF	World Wide Fund for Nature
ZEB	Zero Energy Buildings

INDEPENDENT ASSURANCE STATEMENT

Scope and Approach

DNV AS - DUBAI BRANCH ('DNV') was engaged by the management of Dubai Water and Electricity Authority ('DEWA' or 'the Company') to undertake an independent limited level of assurance of the selected sustainability performance indicators identified through its materiality determination process ('sustainability performance data') and presented in DEWA's Sustainability Report 2021 ('the Report') in its printed format for the financial year ending 31st December 2021.The data verification was competed for one (1) year period covering January 2021 to December 2021. The intended user of this Assurance Statement is the management of Company. Our assurance engagement was carried out in June – July 2022.We performed our work in accordance with the requirements of the International Federation of Accountants' (IFAC) International Standard on Assurance Engagement (ISAE) 3000 (Revised) (Assurance Engagements Other than Audits or Reviews of Historical Financial Information) and DNV's assurance methodology VeriSustainTM1.

We planned and performed our work to obtain the evidence we considered necessary for a limited level of assurance opinion. In doing so, we evaluated the mentioned material sustainability performance data presented in the Report, together with DEWA's procedures for ensuring the accuracy, reliability and completeness of disclosures within the Report.

We have not performed any work, and do not express any conclusion, on any other information that may be published outside of the report and/or on DEWA's website for the current reporting period.

The materiality assessment was performed in November 2021 and presented in the Report in the "About DEWA" chapter.

The reporting topic boundaries for sustainability performance chosen by DEWA are as set out in the Report in the Content Index.

Responsibilities of the Management of DEWA and of the Assurance Provider

The Report discloses that this is DEWA's ninth stainability Report. DEWA is a member of GRI Gold Community and part of the Standards Pioneers Programme, being one of the first 100 organisations in the world to publish its sustainability report as per GRI Standards and assured in accordance with ISAE3000 and DNV VeriSustain. The Management ('Climate Change & Sustainability Department at DEWA)has the sole accountability for the preparation of the Report and are responsible for all information disclosed in the Report as well as the processes for collecting, analysing and reporting the information. In performing assurance work, our responsibility is to the Management ; however, our statement represents our independent opinion and is intended to inform the outcome of our assurance to the stakeholders of DEWA.

DNV was not involved in the preparation of any statement or data included in the Report except for this Assurance Statement and a Management Report shared with DEWA.

DNV's assurance engagements are based on the assumption that the data and related information provided by the Company to us as part of our assurance engagement have been provided in good faith and free from any misstatements or errors. DNV expressly disclaims any liability or co-responsibility for any decision a person or an entity may make based on this Assurance Statement.

[1]*The VeriSustain protocol is available on request from www.dnv.com and is based on our professional experience, international assurance best practices including ISAE 3000 and the GRI's Principles for Defining Report Content and Quality*

Basis of our Opinion and Conclusion

A multi-disciplinary team of sustainability and assurance specialists performed a blended work at DEWA's in Dubai, United Arab Emirates (UAE). We adopted a risk-based approach, i.e. we concentrated on the issues of high material relevance to Company and its key stakeholders for all performance Indicators. We carried out following activities:

- Reviewed the Company's approach to its materiality determination process and its outcome as stated in this Report to validate the relevance of selected sustainability performance disclosures;
- Performed a limited level of verification of the performance indicators reported in this Report for the period 1st January 2021 to 31st December 2021. The data covers all of DEWA's sites in the Emirate of Dubai, UAE, and under its direct control;
- Assessed DEWA's headquarters at Dubai, UAE, to review processes and systems for disclosing selected sustainability performance data and conducted interviews with the management team of the Company and other representatives, including process owners and decision-makers from different divisions and departments of the Company to validate the performance data. We were free to choose interviewees and interviewed those with overall responsibility to validate the Company's sustainability performance. No external stakeholders were interviewed as part of this engagement;
- Performed sample-based checks of the processes for generating, gathering and aggregating the selected sustainability performance data presented in the Report. Our verification considers an uncertainty of ±2.5% for a limited level of verification towards errors in estimation and measurement, and omissions as mutually agreed;
- Reviewed by means of sample-based checks, the methods, measurement techniques, estimation methods, assumptions and uncertainties involved in the process of data measurements as adopted by the Company and obtained an understanding of the data management system to test the accuracy, reliability and completeness of selected performance disclosures.

During the process, we did not come across limitations to the scope of the agreed assurance engagement i.e. verification of selected performance indicators as mutually agreed.

Opinion and Conclusion

We evaluated the process of data aggregation in relation to the principles of Accuracy, Reliability and Completeness of performance indicators which are based on GRI Standards and as detailed below. Based on our methodology and scope of work agreed upon, we confirm that the following disclosures are a fair representation of the Company's sustainability performance for the year 2021:

Sr. No.	***GRI Standard/Topic***
1	Research and Development • Management Approach • R&D Journey • Research Topics
2	GRI 204: Procurement 2016
3	GRI 303: Water and Effluent 2018 303-1 Water withdrawal by source 303-2 Water sources significantly affected by withdrawal of water 303-3 Water recycled and reused 303-4 Water Discharge 303-5 Water Consumption
4	GRI 305: Emissions 2016 305-1 Direct (Scope 1) Emissions 305-2 Energy indirect (Scope 2) Emissions 305-3 Other indirect (Scope 3) GHG emissions 305-5 Reduction of GHG Emissions
5	GRI 403: Occupational Health and Safety 2018

Materiality

The process of determining the issues that is most relevant to an organization and its stakeholders.

The Report describes the materiality assessment exercise carried out for reporting key sustainability performance of the Company, which is based on inputs obtained from internal and external stakeholder workshops, market trends and elements of DEWA's Sustainability Framework. The process involved a review and prioritization of topics to arrive at the most significant material topics for the Company, which were further validated by DEWA's Top Management. In our opinion the Report has fairly addressed the requirements related to the Principle of Materiality.

Reliability and Accuracy

The accuracy and comparability of information presented in the report, as well as the quality of underlying data management systems.

The sustainability performance data verified by us as part of our assurance at DEWA's headquarters at Dubai were found to be accurate; we did not identify any systemic errors in the reliability of the management systems in bringing out this sustainability information. Certain data aggregation and transcription errors which were identified during the process of verification were attributable to transcription, interpretation and aggregation errors. These have been communicated to the Company and the same have been subsequently corrected in the Report. DEWA expressed its commitment to continually improve and further strengthen the quality of its data management processes to further strengthen the reliability of reported information. In our opinion the Report has fairly addressed the requirements related to the Principle of Reliability and Accuracy.

Completeness

How much of all the information that has been identified as material to the organisation and its stakeholders is reported.

The selected boundaries for the sustainability performance verified by us for the reporting period includes DEWA only. In our opinion the Report has fairly addressed the requirements related to the Principle of Completeness.

Based on the procedures DNV has performed and the evidence we have obtained, nothing has come to our attention that causes us to believe that the Selected Information for the year ended 31 December 2021 has not been prepared, in all material respects, in accordance with the Reporting Criteria. This conclusion is to be read in the context of what we say in the remainder of our report.

For and on behalf of DNV AS, Dubai Branch

Olga Rudkovskaya Sustainability Manager, Middle East DNV AS, Dubai Branch	Vinod Richharia Lead Verifier Middle East DNV AS, Dubai Branch	Dmitry Sukhinin Technical Reviewer DNV Supply Chain & Product Assurance, Norway

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