KAHRAMAA
كهرماء
المؤسسة العامة القطرية للكهرباء والماء
Qatar General Electricity & Water Corporation

# ANNUAL STATISTICS REPORT 2022

km.qa

Annual Statistics Report 2022

Qatar General Electricity & Water Corporation “KAHRAMAA”

**Prepared by:** Planning & Quality Department
in collaboration with KAHRAMAA Departments

**Production :** Public Relations & Communication Department

*KAHRAMAA Publications*

His Highness

**Sheikh Tamim Bin Hamad Al-Thani**

Emir of the State of Qatar

# Table of Contents

# MINISTER'S FOREWORD

Qatar maintains its position as one of the world's most dynamic and fastest growing economies to achieve phenomenal GDP increase. The National Vision 2030 guides the country's growth. The government of Qatar is committed to creating a dynamic, competitive and broad-based economy by increasing economic diversification through the re-investment of Qatar's significant energy revenues. The outcome is evident with rapid urbanization during the last decade, brought about by wise national economic planning, stable state revenues and Qatar's vision of shaping Doha as a world-scale metropolis. This means continued buoyancy for the private sector in Qatar, and a surge in economic activities in infrastructure creation and building of civic amenities. Large opportunities for investment and energy trade are present, coupled with continuing lifestyle improvement, development of telecommunications, information technology, knowledge economy, renewable resources and business efficiency.

Qatar's rapid development are driving the population growth, resulting investments in transport, communications, tourism, sports facilities and other services are in progress. The development has generated increased demand for continuous improvements and expansion of basic infrastructure and services most notably

**H.E. SAAD SHERIDA AL-KAABI**
Minister of State for Energy Affairs

electricity and water. The Qatar National Development Strategy-III (NDS3) is providing the overarching framework and impetus for KAHRAMAA's efforts to ensure quality services, whilst ensuring sustainability of electricity and water production and consumption.

Despite global economic challenges the strength and diversity of Qatar›s economy is evident by the admirable performance of economic indicators, which is also reflected in the energy and water sectors. Peak electricity demand in 2022 was 9,400 MW, grew by 5.9% vs last year. Total energy transmitted in 2022 was 50,731 GWh, 4.7% more in comparison to last year. In case of water system maximum demand was 426 MIGD, increase by 0.9% as compared to the last year. The total water production in 2022 was 672 $Mm^3$, 0.1% increase as compared to previous year.

As part of its long term strategy and vision 2030, KAHRAMAA is implementing various strategic initiatives to enhance customer services, meet demand growth, improve business efficiency and strengthen its workforce. KAHRAMAA continued vision is to transform itself into self-sustaining business, providing high quality and sustainable electricity and water by diversifying energy sources such as solar energy for better living in Qatar.

Thanks are due to His Highness, Sheikh Tamim Bin Hamad Al Thani, the Emir of the State of Qatar for his extensive support for KAHRAMAA business development, thus contributing towards the prosperity of the State of Qatar. Thanks are also due to all KAHRAMAA employees for their efforts towards achieving KAHRAMAA's objectives and enabling KAHRAMAA in achieving much success in 2023 and beyond.

# PRESIDENT'S FOREWORD

In compliance with the mandate from the government of Qatar, KAHRAMAA publishes this annual statistical report. The purpose is to provide other Qatari government institutions, investors, the academe and the general public with information relevant to and provides the end-user an understanding and appreciation of the development of electricity, water and district cooling sectors in Qatar.

Development plan by State of Qatar gives the highest priority to the provision of services for all its residents and targets the promotion of the national economy and enhancement of productivity and organizational efficiency at all state authorities. We serve a growing economy and population in a region with an abundance of fossil fuels, yet scarce in water sources. In this context, it is imperative that we use our National resources and manage our growth efficiently and wisely. To address this need,"Tarsheed" program in KAHRAMAA which is the National Conservation Program is in progress to create sustainable culture and lifestyle among its residents, the public and private sector in cooperating towards conservation & efficiency to ensure optimal use of electricity and water. KAHRAMAA has implemented legislative measures enforcing compliance to the national conservation laws. It aims to influence the lifestyle of

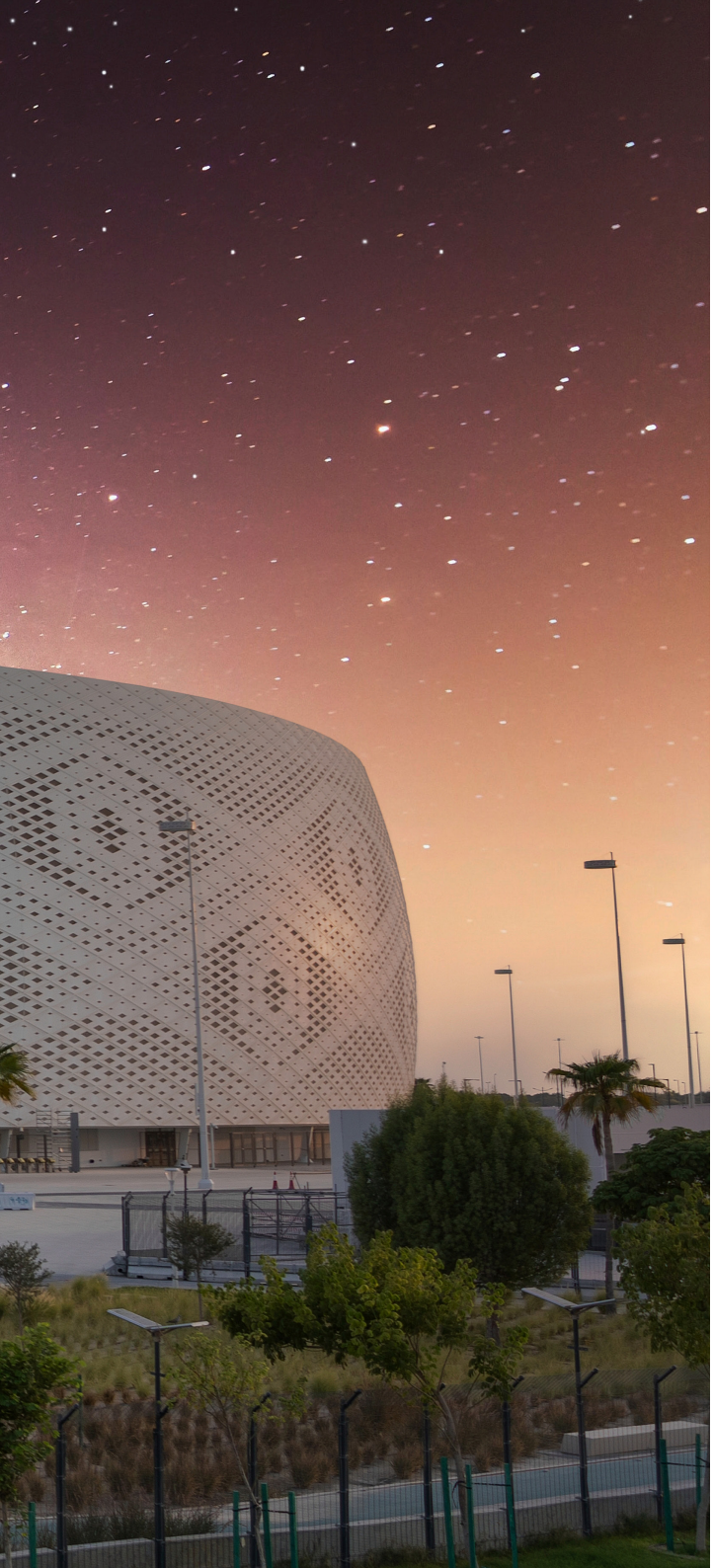
**Essa Bin Hilal Al-Kuwari**
KAHRAMAA President

Qatar's residents in domestic consumption, as well as implement water and electricity saving technologies.

KAHRAMAA has aligned its long term strategy with Qatar National Vision (QNV 2030) and the phase-II of its strategy is under implementation with following 15 Corporate objectives to achieve: Accelerate community and social change, Build on environmental and conservation efforts, including water security, Build on becoming a customer centric organization, Excel in providing reliable, available and high quality supply of electricity and water, Promote regulatory changes, Excel at financial performance through optimizing cost & revenues, Build on asset management capabilities to optimize asset performance, Build on corporate governance, legal, risk management and compliance, Optimize processes and systems and align target operating model to KAHRAMAA's mandate, Promote and deploy smart technologies, Promote innovation and R&D and exploring new commercial opportunities, Excel in creating a safe and healthy working environment, Promote and implement integration of renewable resources, Strengthen Qatarization & accelerate development of future leaders and Build on attracting, motivating, developing and retaining talent.

KAHRAMAA pursues its long term strategy up to 2030 to become a customer centric organization by adopting leading global practices for customer services in the utility sector. It also seeks financial sustainability, which will be achieved with increased revenues and reduction in financial support from Government. Continual progress is being made to preserve the distinguished position that KAHRAMAA has reached to build the state economy by innovation and transformational initiatives. Basic infrastructures are not an end in themselves; rather, they are means for ensuring the delivery of goods and services. They are crucial to achieving prosperity and growth in a way that enhances the quality of life, including the social well-being, health and safety of the people of Qatar, and the quality of their environment. KAHRAMAA undertake its commitments seriously as we believe in the values of corporate social responsibility, customer centricity and teamwork in order to live our aspirations and to meet our mandate as a sole electricity and water services provider in the country. Despite the challenges in the recent past the State of Qatar has maintained adequate supply of electricity and water, reinforced by reliable and efficient transmission and distribution network across the country. We are determined to exert all efforts to maintain the place of pride KAHRAMAA has achieved. We endeavour to promote and maintain the good relationship with our customers and other stakeholders and look confidently into the future and feel proud to be part of Qatar's success story.

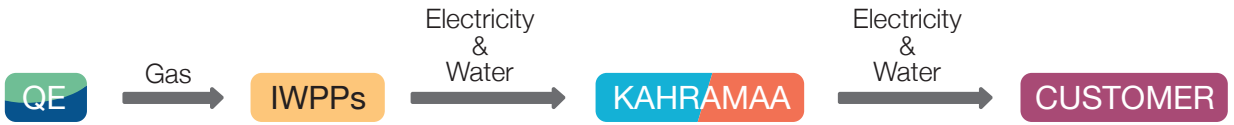
# KAHRAMAA'S BUSINESS MANDATE



Up to the year 1999, electricity generation and water production, transmission and distribution services were carried out by the former Ministry of Electricity and Water (MEW).

To achieve some degree of deregulation and to encourage private investors, in the year 2000 power generation and water production services were separated and privatized into a business named Qatar Electricity and Water Company (QEWC). Since that date, several additional facilities have been built to accommodate Qatar's increasing power and water needs. Transmission and distribution of electricity and forwarding and distribution of water remained as a government service carried out by the new government corporation named KAHRAMAA (Qatar General Electricity and Water Corporation).
KAHRAMAA, now a more streamlined service organization, operates and maintains the sole electricity and water network in the country, focusing only in delivering these basic services to all consumers. The government continues to encourage its entrepreneur citizens to invest in the power generation and water desalination business, otherwise known as IWPP's (Independent Power and Water Providers), adopting global trends of deregulation.
QE (Qatar Energy) remains the sole source of natural gas as fuel for the Power & Water Production facilities run by the IPWP's.

The following diagram illustrates the linkage of four key business entities in Qatar that comprise the supply chain up to the consumer:




As it directly interfaces with consumers, forecasting of electricity and water demand in Qatar remains with KAHRAMAA. KAHRAMAA is intensively involved in initiating and negotiating with IWPP developers for the construction of new power stations and desalination plants. Forecasting of oil and gas and fuels consumption is centralized at Qatar Energy (QE).

# EWT1 KEY GROWTH INDICATORS

In a nutshell, the following table lists key growth indicators for KAHRAMAA in the last five years.

| | 2018 | 2019 | 2020 | 2021 | 2022 | Average % Change |
|---|---|---|---|---|---|---|
| A. ELECTRICITY | | | | | | |
| Generated, GWh | 47,913 | 49,873 | 49,259 | 51,641 | 54,623 | **3.7 %** |
| % Change | 5.2% | 4.1% | -1.2% | 4.8% | 5.8% | |
| Sent Out, GWh | 44,655 | 46,435 | 45,826 | 48,329 | 51,325 | **3.7 %** |
| % Change | 4.3% | 4.0% | -1.3% | 5.5% | 6.2% | |
| Maximum Demand, MW | 7,875 | 8,475 | 8,600 | 8,875 | 9,400 | **3.7 %** |
| % Change | 0.3% | 7.6% | 1.5% | 3.2% | 5.9% | |
| No. of customers (billed & non-billed, based on number of meters) | 376,636 | 410,661 | 433,751 | 454,765 | 491,308 | **6.2 %** |
| % Change | 3.3% | 9.0% | 5.6% | 4.8% | 8.0% | |
| B. WATER | | | | | | |
| Water Production Mm3 | 637 | 671 | 691 | 671 | 672 | **2.1 %** |
| % Change | 5.1% | 5.3% | 3.0% | -2.9% | 0.1 % | |
| Maximum Production, Mm3/Day | 1.84 | 1.98 | 2.06 | 2.00 | 1.97 | **2.1 %** |
| % Change | 3.4% | 7.6% | 4.0% | -2.9% | -1.5 % | |
| No. of Water customers (billed & non-billed, metered plus served by water tankers) | 329,832 | 363,338 | 382,932 | 406,745 | 426,738 | **6.1 %** |
| **% Change** | **4.0%** | **10.2%** | **5.4%** | **6.2%** | **4.9%** | |

The average growth of peak demand for electricity and water are growing at between 2-4% which highlights steady growth of Qatar economy.

* The water production is including Pearl Qatar RO plant

# EWT2 STRATEGIC ELECTRICITY & WATER INFRASTRUCTURE PROJECTS

KAHRAMAA has initiated various projects for the construction of production, transmission, distribution and storage capacities to meet the escalating electricity and water demand and meet customer satisfaction.

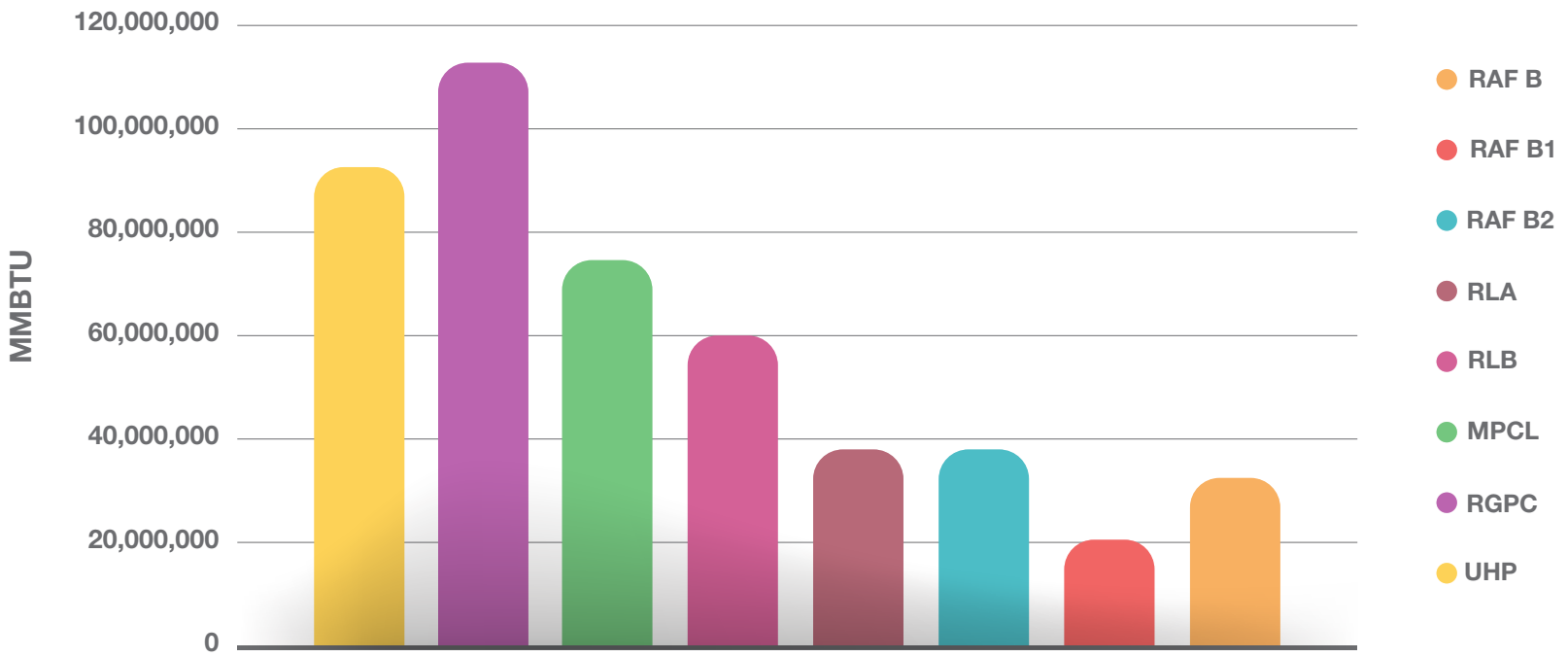
Some of the key projects are given below:

- Advanced Metering Infrastructure- AMI
- Installation of Electricity & Water SMART Meters
- Billing and Customer Relationship Management
- Solar Power Production Facility
- Additional Capacity from IWPPs – Facility E
- Qatar Power Network Expansion- Phase 12, 13 & additional projects
- Extension of Water Distribution Network – Phase 6
- Facility E Associated Water Transmission Pipelines
- Reconstruction & Upgrading of Water RPS & Associated Pipelines
- Reconstruction & Upgrading of Underground Water Reservoirs

# EWT3 GAS CONSUMPTION BY IWPP (MMBTU) IN 2022

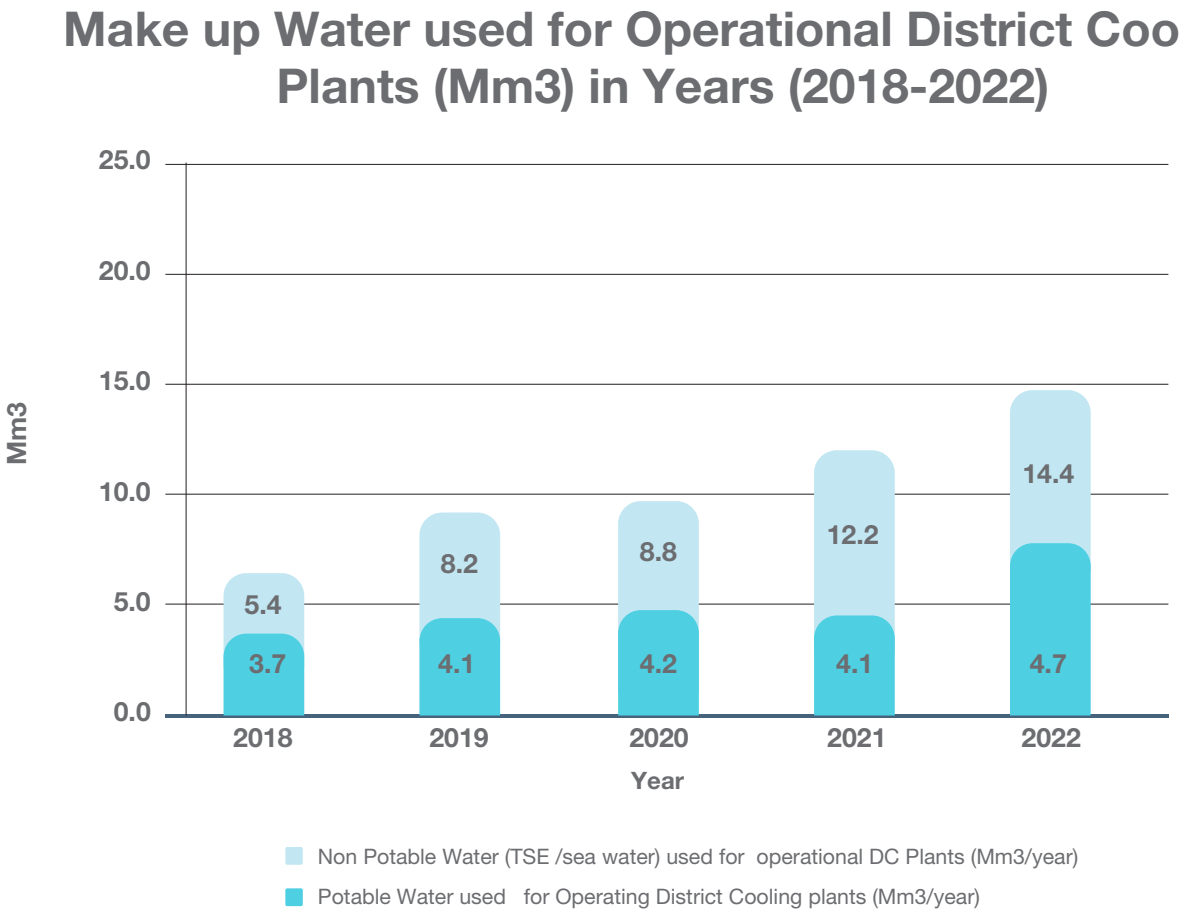
| Month | RAF B | RAF B1 | RAF B2 | RLA | RLB | MPCL | RGPC | UHP | Total |
|---|---|---|---|---|---|---|---|---|---|
| Jan | 2,319,243 | 1,711,614 | 2,851,578 | 3,406,187 | 4,858,873 | 1,572,020 | 5,440,474 | 5,546,077 | **27,706,065** |
| Feb | 1,940,057 | 2,362,430 | 2,138,267 | 3,051,487 | 4,201,680 | 1,507,414 | 4,647,216 | 4,986,452 | **24,835,003** |
| Mar | 2,311,056 | 2,105,845 | 3,075,202 | 3,702,709 | 4,415,578 | 3,128,574 | 5,760,004 | 6,299,477 | **30,798,444** |
| Apr | 3,061,450 | 2,907,568 | 3,500,044 | 3,255,264 | 4,766,959 | 4,447,923 | 7,009,434 | 6,238,503 | **35,187,145** |
| May | 3,037,983 | 1,314,317 | 3,129,798 | 3,339,898 | 5,592,375 | 7,087,475 | 9,571,982 | 7,643,424 | **40,717,252** |
| Jun | 3,133,452 | 2,813,175 | 3,306,761 | 3,222,348 | 5,248,278 | 8,152,427 | 11,731,846 | 8,330,229 | **45,938,516** |
| Jul | 2,998,623 | 2,645,021 | 3,304,205 | 3,321,189 | 5,815,809 | 8,869,297 | 12,186,276 | 9,350,352 | **48,490,772** |
| Aug | 3,234,602 | 3,052,900 | 4,668,292 | 3,349,980 | 5,881,636 | 9,365,952 | 12,098,485 | 11,050,070 | **52,701,917** |
| Sep | 3,622,980 | 1,534,920 | 4,395,166 | 3,228,841 | 5,657,453 | 8,775,126 | 11,276,613 | 9,556,780 | **48,047,879** |
| Oct | 3,047,794 | 1,090,846 | 3,063,283 | 3,288,581 | 5,818,196 | 7,400,463 | 10,758,813 | 8,329,664 | **42,797,640** |
| Nov | 2,811,128 | 1,063,257 | 2,905,665 | 3,233,367 | 4,669,743 | 5,796,695 | 8,247,164 | 7,736,799 | **36,463,817** |
| Dec | 2,157,834 | 1,094,700 | 3,067,709 | 3,307,743 | 3,774,139 | 5,463,149 | 6,131,893 | 5,958,656 | **30,955,822** |
| **Total** | **33,676,201** | **23,696,594** | **39,405,970** | **39,707,593** | **60,700,718** | **71,566,514** | **104,860,199** | **91,026,484** | **464,640,273** |

## Gas consumption by IPPs in year 2022



# EWT4 NON-POTABLE WATER USED IN DISTRICT COOLING

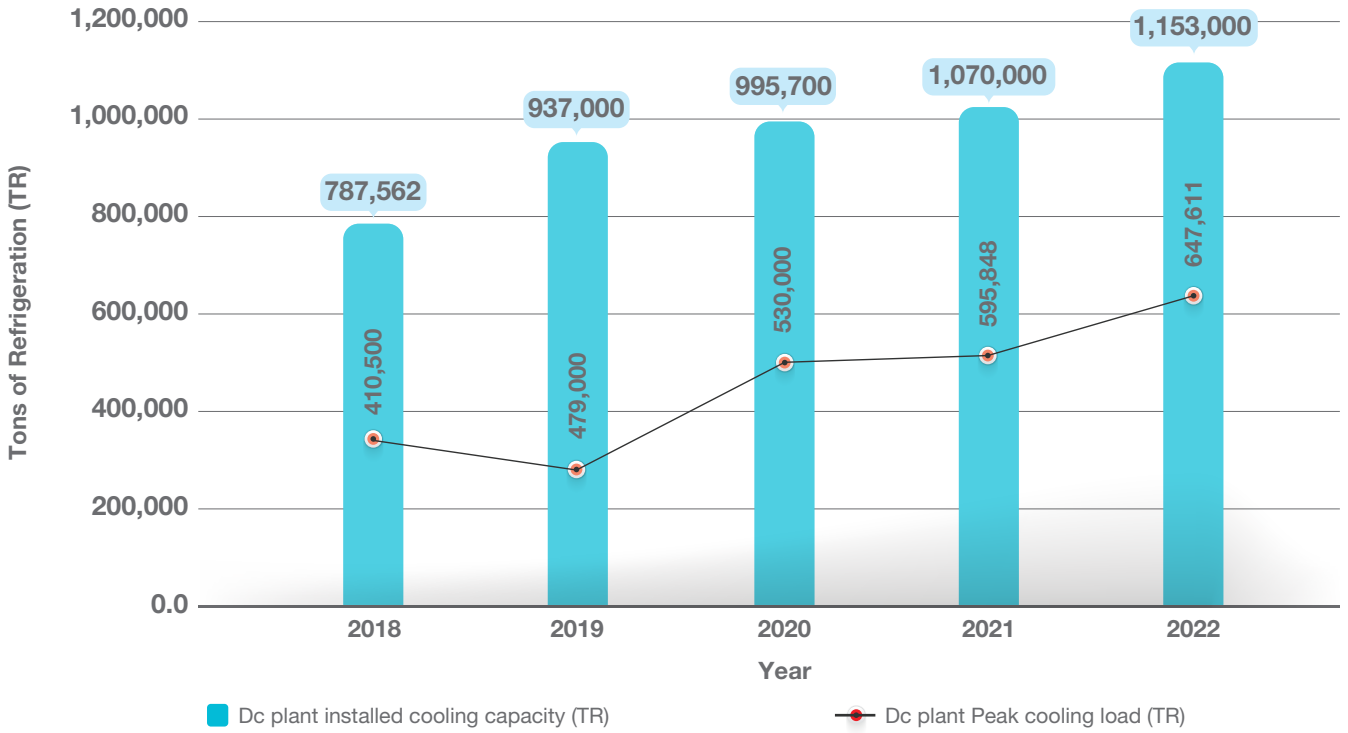
| Year | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|
| Potable Water used for Operating District Cooling plants (Mm3/year) | 3.7 | 4.1 | 4.2 | 4.1 | 4.7 |
| Non Potable Water (TSE /sea water) Used for operational DC Plants (Mm3/year) | 5.4 | 8.2 | 8.8 | 12.2 | 14.4 |
| Total Makeup Water demand for Cooling (Mm3/year) | 9.1 | 12.3 | 13 | 16.3 | 19.1 |



# EWT5 OPERATIONAL PEAK DISTRICT COOLING LOAD IN YEARS 2018-2022

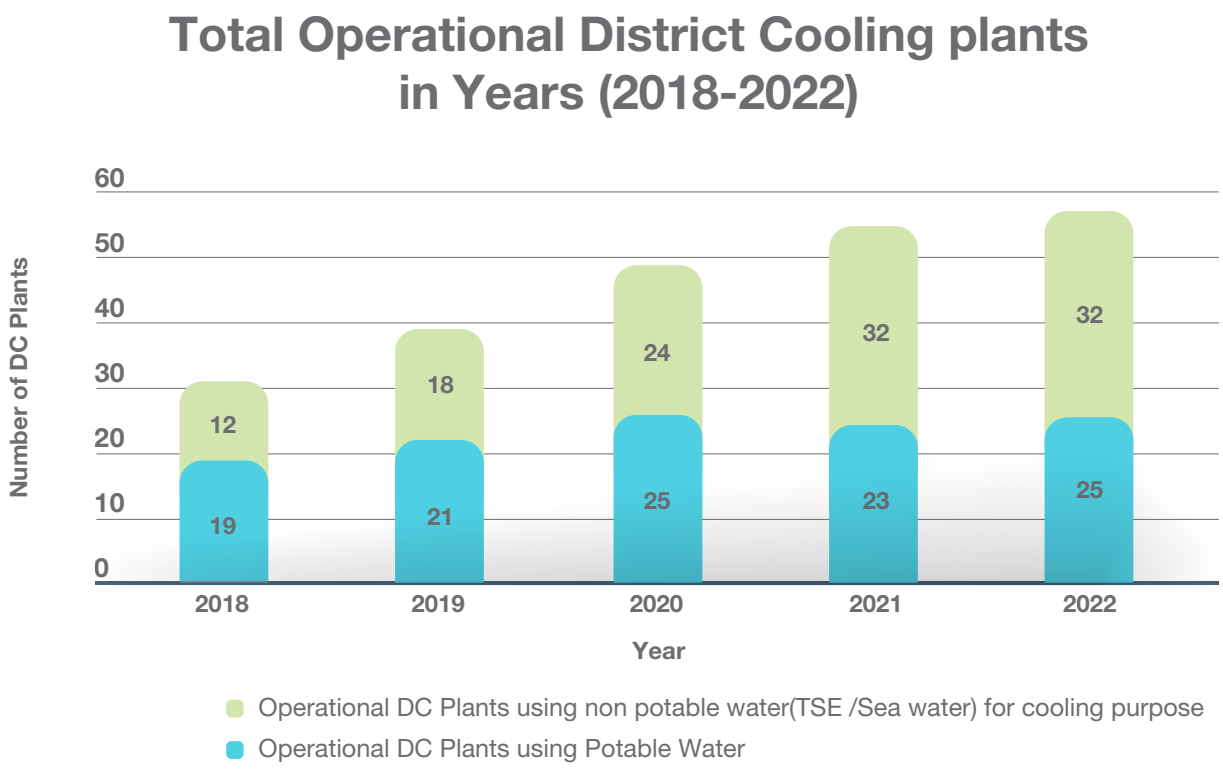
| Year | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|
| DC plant Peak Cooling Load (TR) | 410,500 | 479,000 | 530,000 | 595,848 | 647,611 |
| DC plant Installed Cooling Capacity (TR) | 787,562 | 937,000 | 995,700 | 1,070,000 | 1,153,000 |

## DC plant installed cooling capacity and peak load (TR) in years 2018- 2022



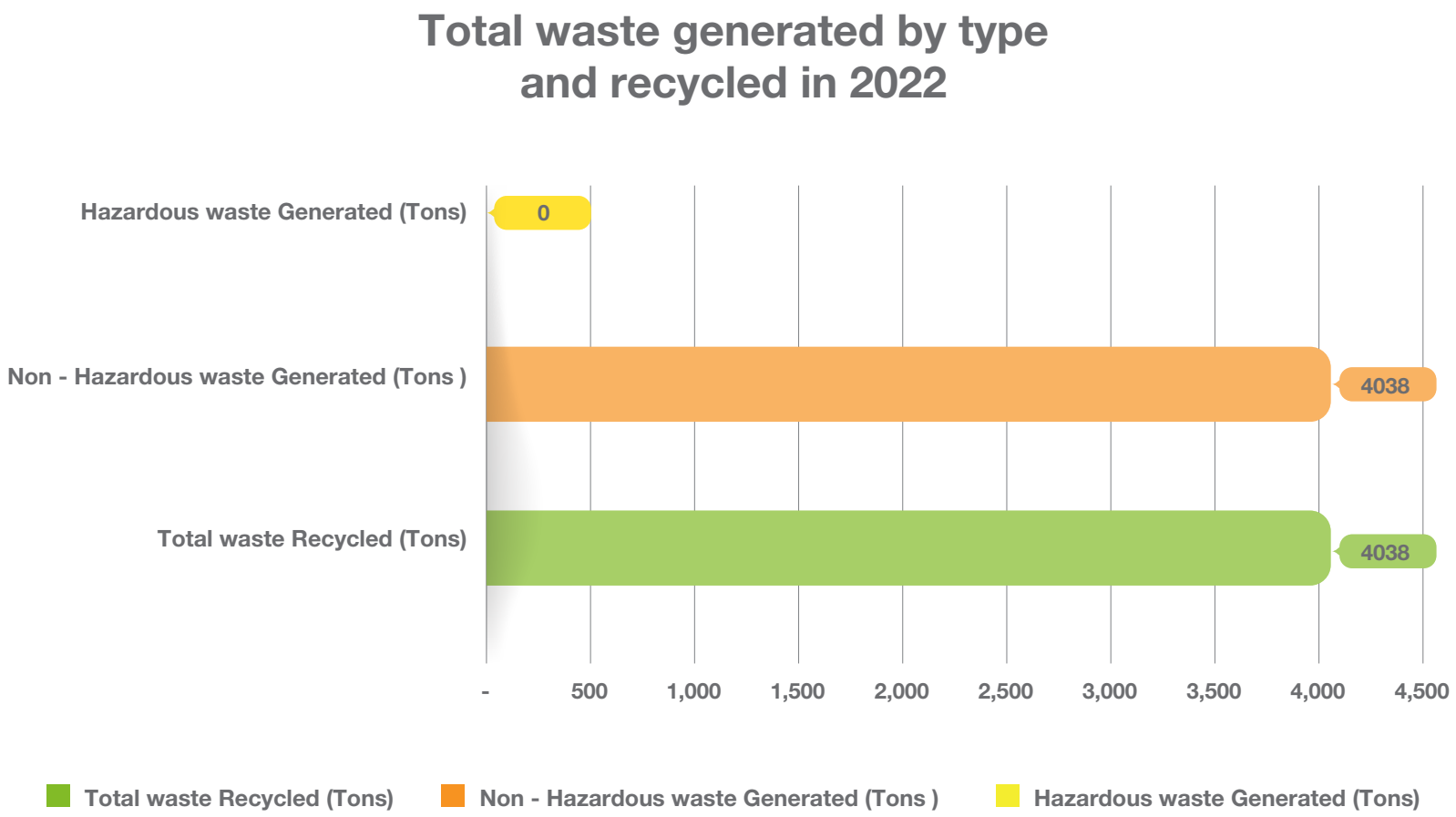
# EWT6 OPERATIONAL DISTRICT COOLING PLANTS IN YEARS 2018-2022

| Year | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|
| Total Operational District Cooling plants | 31 | 39 | 49 | 55 | 57 |
| Number of operational DC Plants using non potable water(TSE /Sea water) for cooling purpose | 12 | 18 | 24 | 32 | 32 |
| Operational DC Plants using Potable Water | 19 | 21 | 25 | 23 | 25 |



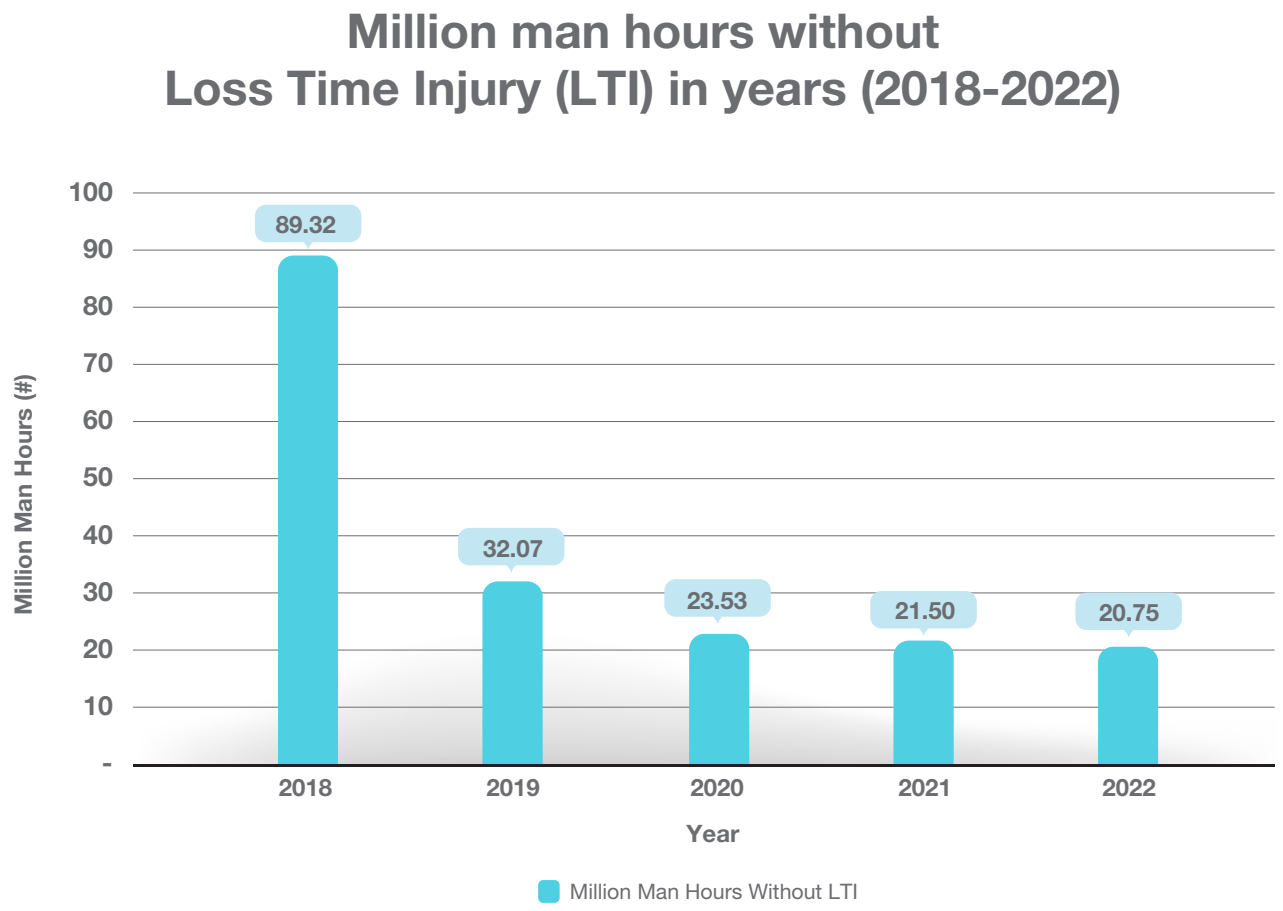
# EWT7 TOTAL WASTE GENERATED BY TYPE AND RECYCLED IN 2022

| Year 2020 | Total waste Recycled* (Tons) | Non - Hazardous waste Generated (Tons ) | Hazardous waste Generated (Tons) |
|---|---|---|---|
| | 4038.12 | 4038.12 | 0 |



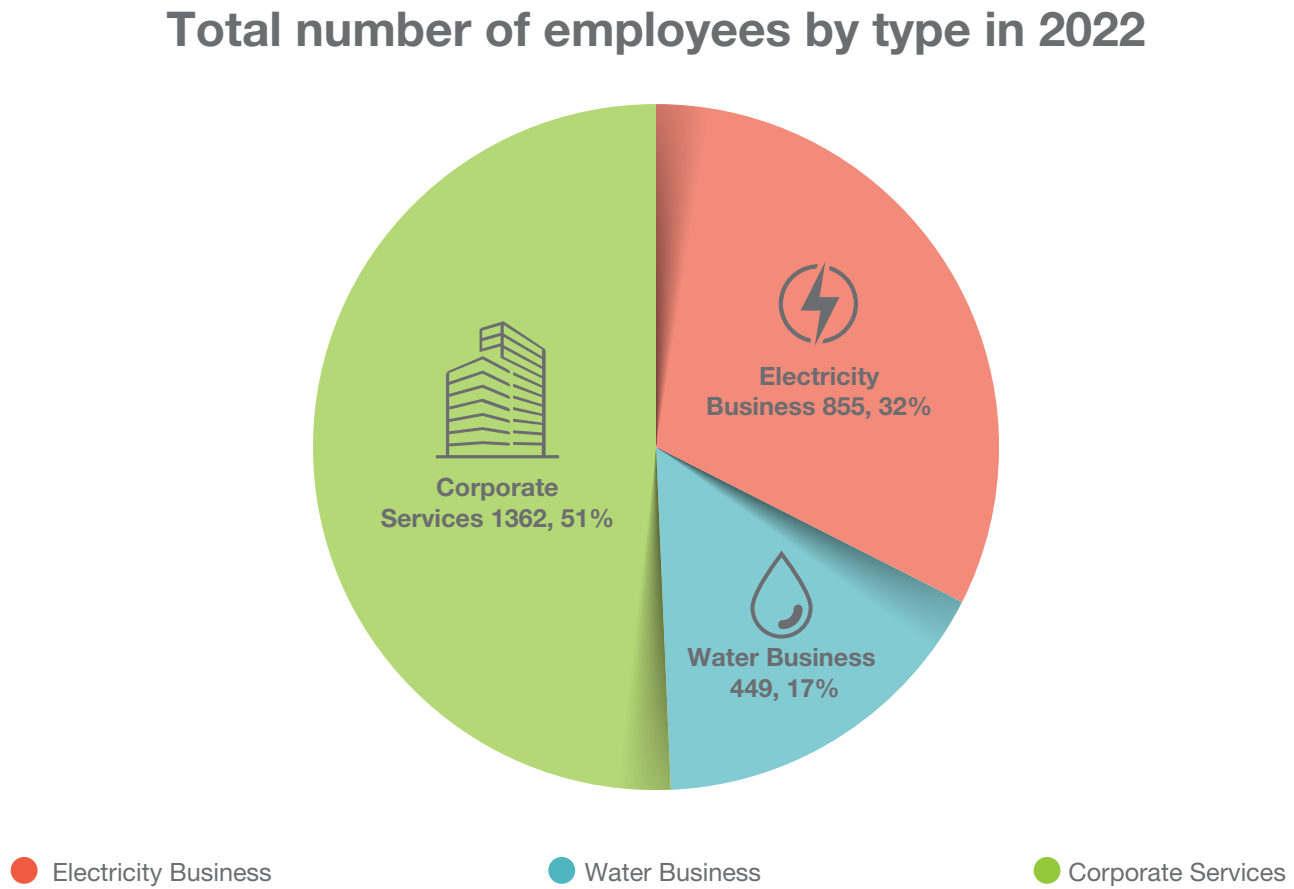
# EWT8 MILLION MAN HOURS WITHOUT LTI IN YEARS (2018-2022)

| Year | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|
| Million Man Hours without LTI | 89.32 | 32.07 | 23.53 | 21.50 | 20.75 |



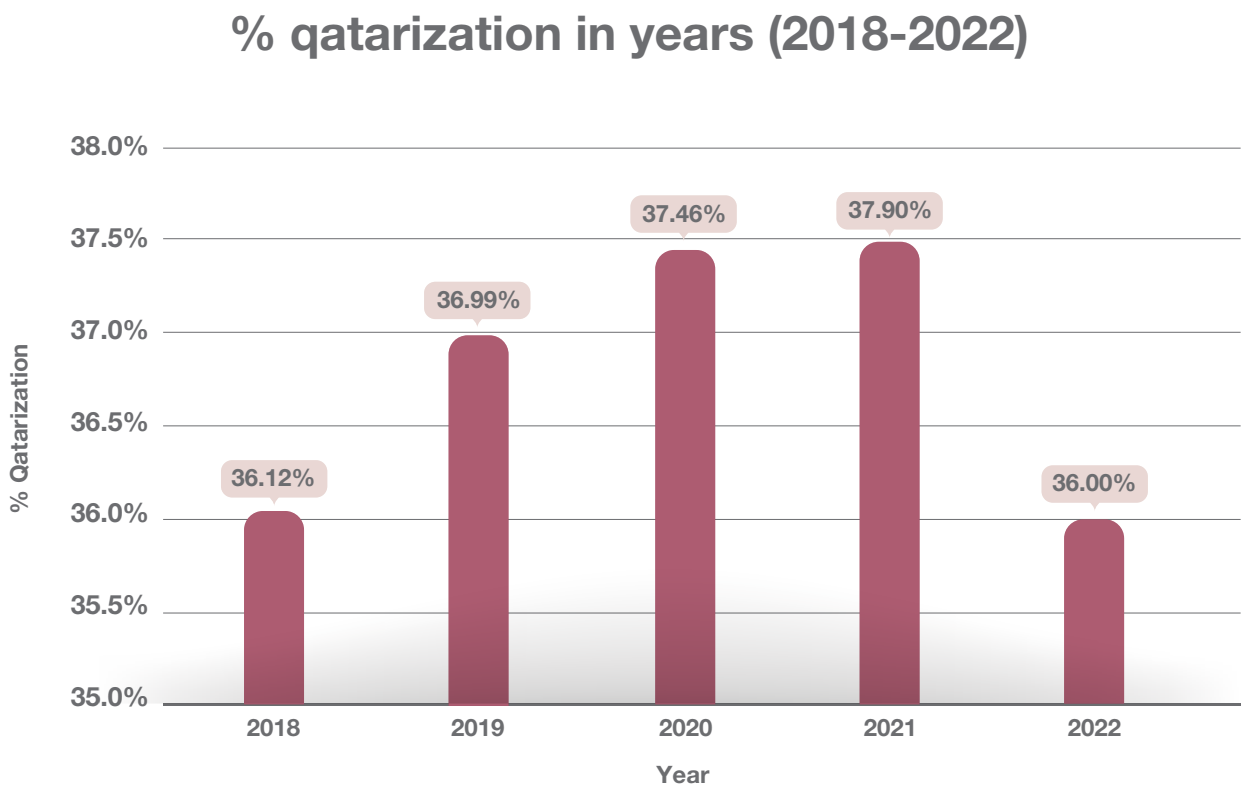
# EWT9 TOTAL NUMBER OF EMPLOYEES BY TYPE IN 2022

| Total Number of Employees by Type in 2022 | Electricity Business | Water Business | Corporate Services |
|---|---|---|---|
| | 855 | 449 | 1362 |



# EWT10 QATARIZATION IN LAST FIVE YEARS

| % Qatarization | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|
| | 36.12% | 36.99% | 37.46% | 37.90% | 36.00% |




Hilton

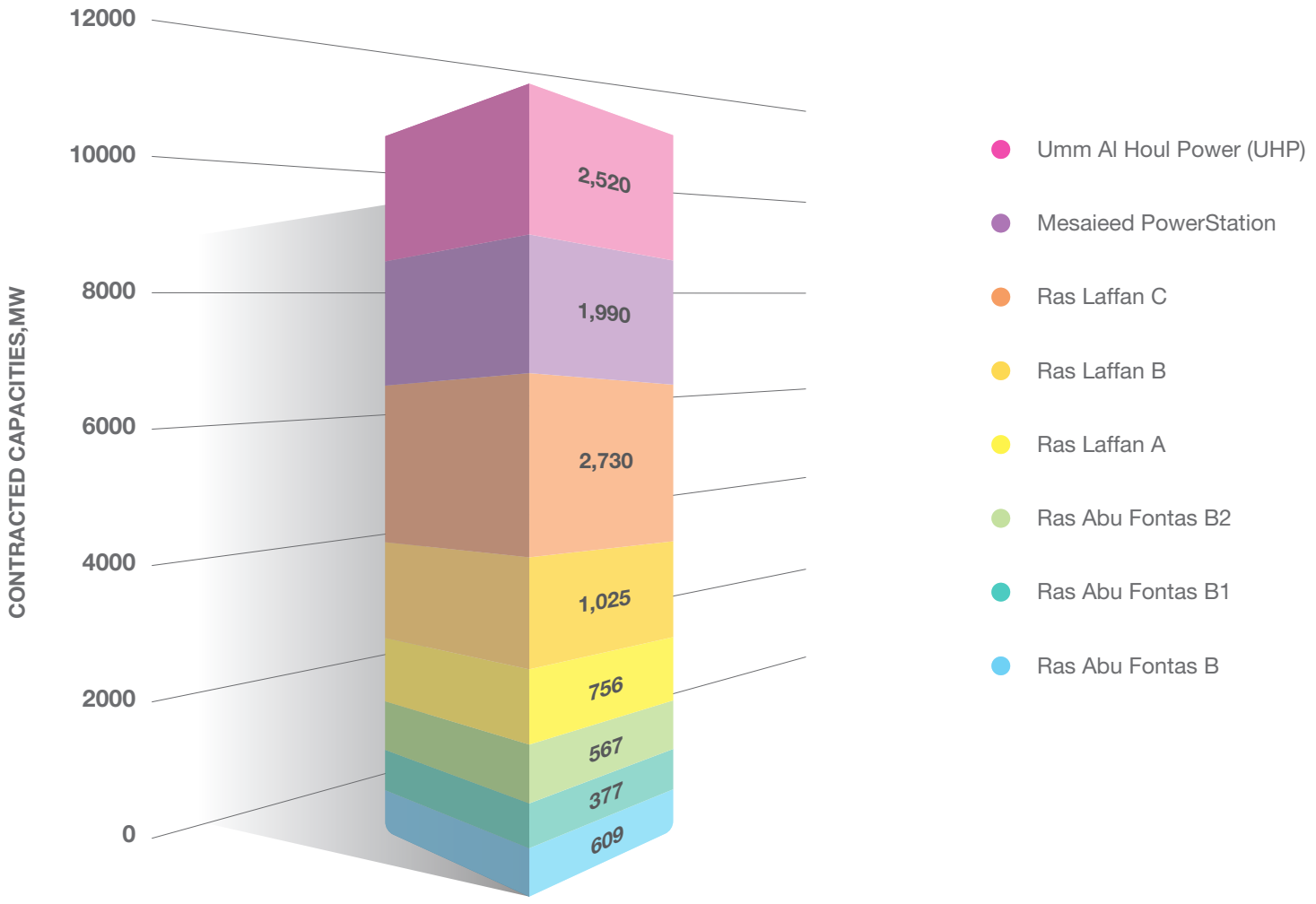
# ELECTRICITY STATISTICS

# ET1 CONTRACTED CAPACITIES BY IWPPs

| Independent Power & Water Producer | Contracted Capacity,MW |
|---|---|
| Qatar Electricity & Water Company | |
| Ras Abu Fontas B | 609 |
| Ras Abu Fontas B1 | 377 |
| Ras Abu Fontas B2 | 567 |
| Sub-Total | 1553 |
| Ras Laffan | |
| Ras Laffan A (Ras Laffan Power Company) | 756 |
| Ras Laffan B (Q Power) | 1,025 |
| Ras Laffan C (Ras Girtas Power Company) | 2,730 |
| Sub-Total | 4511 |
| Mesaieed Power Company Limited | 1,990 |
| Mesaieed PowerStation | 1990 |
| Umm Al Houl Power Company | |
| Umm Al Houl Power (UHP) | 2520 |
| **Total Capacity** | **10,574** |

Phase-I with installed capacity of 350 MW PV generation at Al kharsaa (Siraj1) was commissioned in 2022.

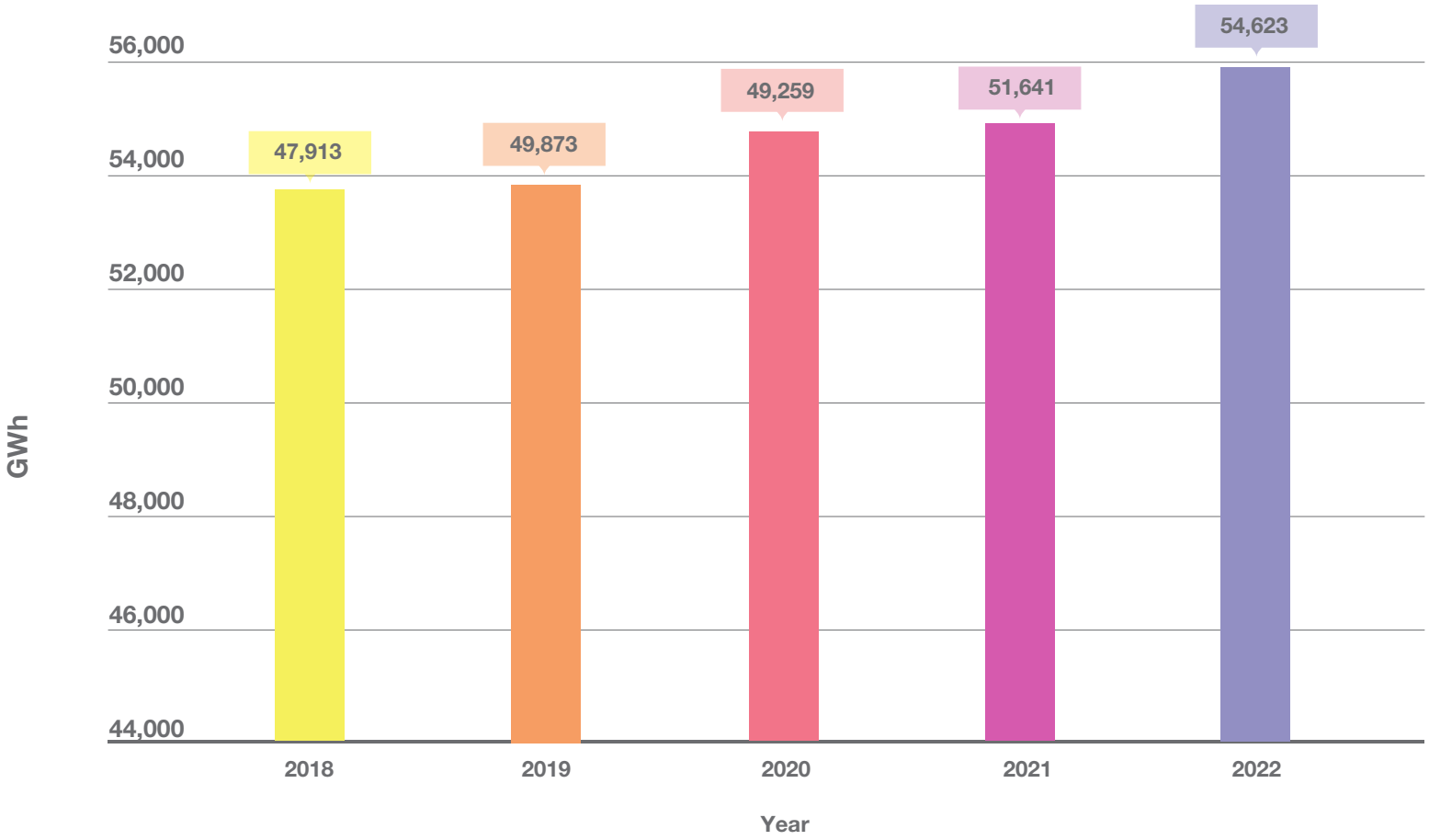
# Electricity contracted capacity by IWPPs in 2022



# ET2 ANNUAL ELECTRICITY GENERATION (2018 – 2022)

| Year | Annual Increase, % | GWh |
|---|---|---|
| 2018 | 5.2% | 47,913 |
| 2019 | 4.1% | 49,873 |
| 2020 | -1.2 % | 49,259 |
| 2021 | 4.8% | 51,641 |
| 2022 | 5.8 % | 54,623 |

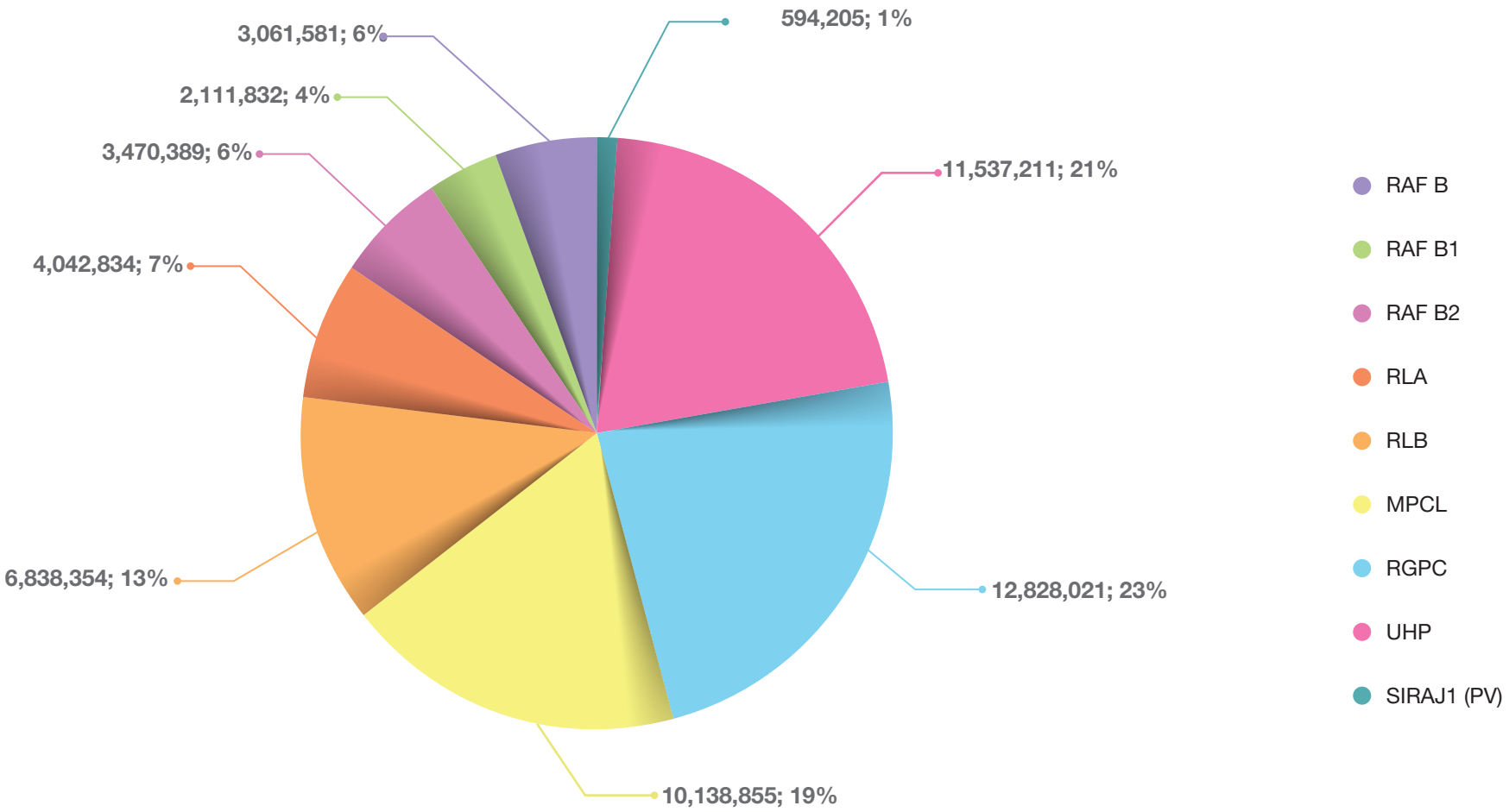
# Electricity generation (GWh) in years (2018-2022)



# ET3 MONTHLY ELECTRICITY GENERATION IN 2022, MWh

| Month | RAF B | RAF B1 | RAF B2 | RLA | RLB | MPCL | RGPC | UHP | SIRAJ1 (PV) | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Jan | 213,211 | 150,220 | 248,409 | 343,142 | 534,853 | 219,510 | 597,994 | 657,106 | 0 | **2,964,445** |
| Feb | 179,984 | 210,943 | 189,461 | 308,403 | 462,586 | 205,222 | 519,427 | 590,811 | 0 | **2,666,837** |
| Mar | 212,677 | 188,059 | 272,388 | 384,944 | 499,818 | 433,726 | 667,006 | 766,373 | 0 | **3,424,990** |
| Apr | 277,847 | 260,633 | 311,843 | 337,112 | 556,865 | 632,277 | 843,335 | 773,118 | 0 | **3,993,029** |
| May | 277,922 | 116,299 | 277,424 | 341,295 | 645,031 | 1,005,781 | 1,181,500 | 971,690 | 0 | **4,816,942** |
| Jun | 284,861 | 256,170 | 293,054 | 329,817 | 597,738 | 1,155,993 | 1,462,870 | 1,077,217 | 4,489 | **5,462,208** |
| Jul | 269,838 | 238,037 | 292,218 | 336,126 | 660,973 | 1,267,530 | 1,563,716 | 1,228,183 | 77,827 | **5,934,448** |
| Aug | 293,518 | 274,675 | 413,354 | 336,849 | 668,514 | 1,338,298 | 1,542,901 | 1,480,683 | 81,192 | **6,429,984** |
| Sep | 323,607 | 135,134 | 381,539 | 324,942 | 641,132 | 1,246,632 | 1,427,505 | 1,247,102 | 98,653 | **5,826,246** |
| Oct | 276,090 | 95,000 | 269,710 | 338,333 | 653,948 | 1,048,488 | 1,334,438 | 1,073,437 | 123,163 | **5,212,608** |
| Nov | 255,666 | 93,376 | 253,250 | 327,356 | 502,983 | 821,188 | 995,509 | 991,748 | 112,268 | **4,353,344** |
| Dec | 196,360 | 93,288 | 267,739 | 334,515 | 413,913 | 764,210 | 691,820 | 679,744 | 96,613 | **3,538,202** |
| **Total** | **3,061,581** | **2,111,832** | **3,470,389** | **4,042,834** | **6,838,354** | **10,138,855** | **12,828,021** | **11,537,211** | **594,205** | **54,623,284** |

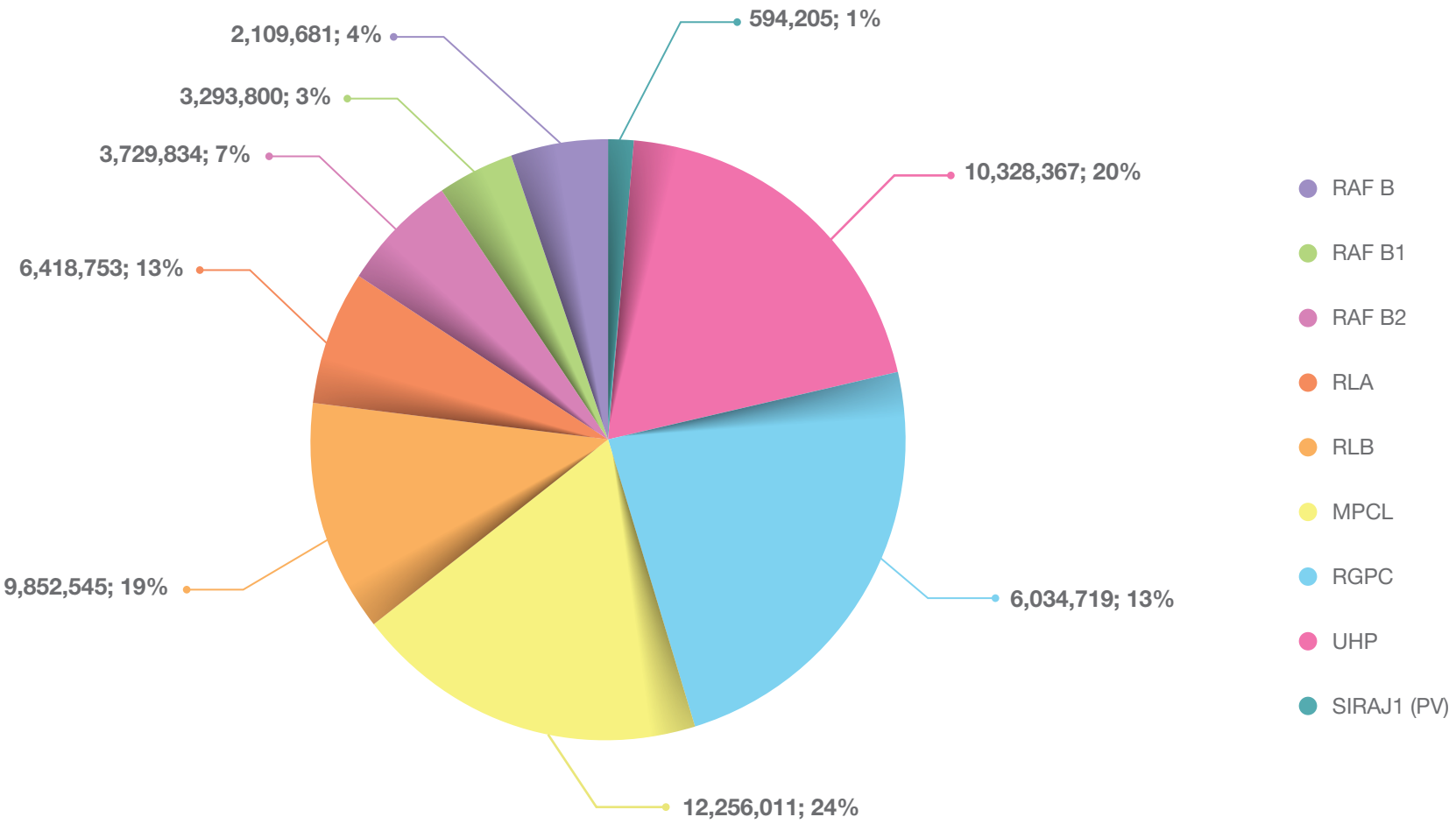
# Electricity generation by IWPPs in 2022 (MWh)



# ET4 ENERGY TRANSMITTED IN 2022, MWh

| Month | RAF B | RAF B1 | RAF B2 | RLA | RLB | MPCL | RGPC | UHP | SIRAJ1 (PV) | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Jan | 189,739 | 150,084 | 234,188 | 316,589 | 502,696 | 211,015 | 562,735 | 567,183 | 0 | **2,734,228** |
| Feb | 157,758 | 210,758 | 179,665 | 284,424 | 433,308 | 197,438 | 488,737 | 510,363 | 0 | **2,462,451** |
| Mar | 187,967 | 187,895 | 257,954 | 356,841 | 468,941 | 420,533 | 630,631 | 666,506 | 0 | **3,177,268** |
| Apr | 251,307 | 260,405 | 295,424 | 311,275 | 525,347 | 613,866 | 802,054 | 683,386 | 0 | **3,743,065** |
| May | 250,841 | 116,193 | 260,757 | 314,837 | 608,028 | 977,829 | 1,130,791 | 868,564 | 0 | **4,527,841** |
| Jun | 258,853 | 255,942 | 276,558 | 304,664 | 561,685 | 1,124,216 | 1,403,395 | 977,904 | 4,489 | **5,167,706** |
| Jul | 241,279 | 237,817 | 277,570 | 309,800 | 620,796 | 1,233,207 | 1,503,655 | 1,124,669 | 77,827 | **5,626,619** |
| Aug | 263,032 | 274,425 | 400,391 | 310,386 | 628,584 | 1,302,270 | 1,482,845 | 1,365,461 | 81,192 | **6,108,586** |
| Sep | 293,893 | 135,010 | 364,681 | 299,535 | 602,422 | 1,212,557 | 1,370,129 | 1,135,598 | 98,653 | **5,512,478** |
| Oct | 246,518 | 94,656 | 254,931 | 312,006 | 613,910 | 1,019,264 | 1,279,497 | 960,418 | 123,163 | **4,904,363** |
| Nov | 229,864 | 93,294 | 238,804 | 301,523 | 469,382 | 798,124 | 948,898 | 886,267 | 112,268 | **4,078,424** |
| Dec | 170,955 | 93,202 | 252,877 | 307,954 | 383,654 | 742,226 | 652,644 | 582,049 | 96,613 | **3,282,174** |
| **Total** | **2,742,006** | **2,109,681** | **3,293,800** | **3,729,834** | **6,418,753** | **9,852,545** | **12,256,011** | **10,328,367** | **594,205** | **51,325,202** |

# Electricity transmitted by IWPPs in 2022 (MWh)



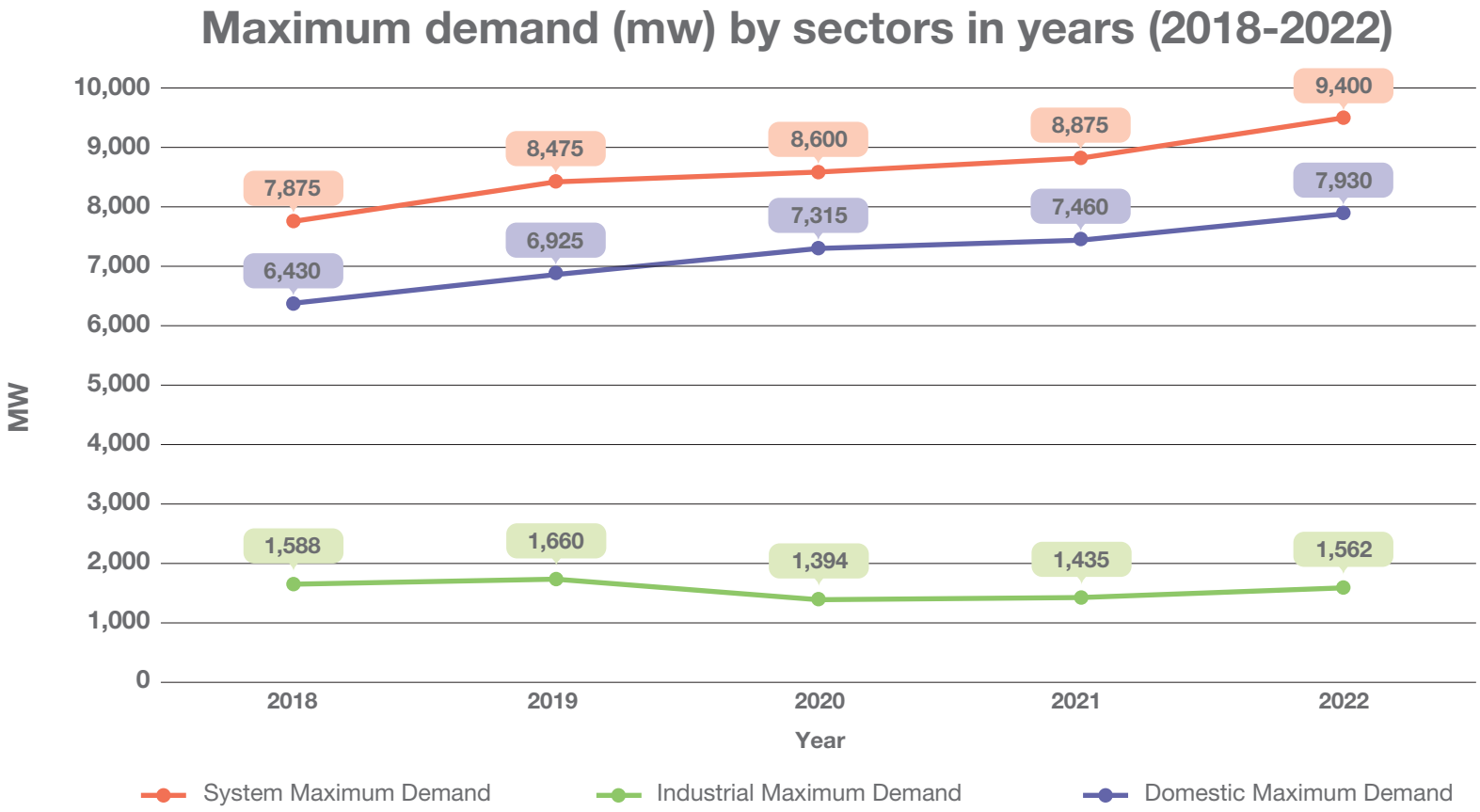
# ET5 MAXIMUM AND MINIMUM SYSTEM LOAD LAST FIVE YEARS, MW

| Year | Maximum Load (MW) | Maximum Load Date (mm/dd/yyyy) | Minimum Load (MW) | Minimum Load Date (mm/dd/yyyy) |
|---|---|---|---|---|
| **2018** | 7,875 | 07/12/2018 | 2,825 | 01/21/2018 |
| **2019** | 8,475 | 09/02/2019 | 2,875 | 01/20/2019 |
| **2020** | 8,600 | 07/30/2020 | 2,910 | 02/15/2020 |
| **2021** | 8,875 | 07/28/2021 | 2,955 | 01/15/2021 |
| **2022** | 9,400 | 08/21/2022 | 3,130 | 01/07/2022 |

# Maximum and minimum system load
# In years (2018-2022)

# ET6 MAXIMUM DEMAND BY SECTORS FROM 2018 TO 2022

| Demand Type | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|
| System Maximum Demand | 7,875 | 8,475 | 8,600 | 8,875 | 9,400 |
| *Industrial Maximum Demand | 1,588 | 1,660 | 1,394 | 1,435 | 1,562 |
| Domestic Maximum Demand | 6,430 | 6,925 | 7,315 | 7,460 | 7,930 |




Note: * Industrial Maximum Demand figure is excluding Qatalum

# ET7 SECTORAL MAXIMUM DEMANDS IN 2022, MW

| Demand Type | Magnitude (MW) | Demand Date (mm/dd/yyyy) |
|---|---|---|
| System Maximum | 9400 | 08/21/2022 |
| *Industrial Maximum | 1562 | 08/09/2022 |
| Domestic Maximum | 7930 | 08/21/2022 |

* Maximum industrial demand excluding Qatalum. The maximum industrial demand including Qatalum is 1844 MW.

# ET8 ANNUAL LOAD FACTORS IN 2022

| Demand Type | Load Factor, % |
|---|---|
| System Maximum | 63.56% |
| Industrial Maximum | 73.16% |
| Domestic Maximum | 58.33% |

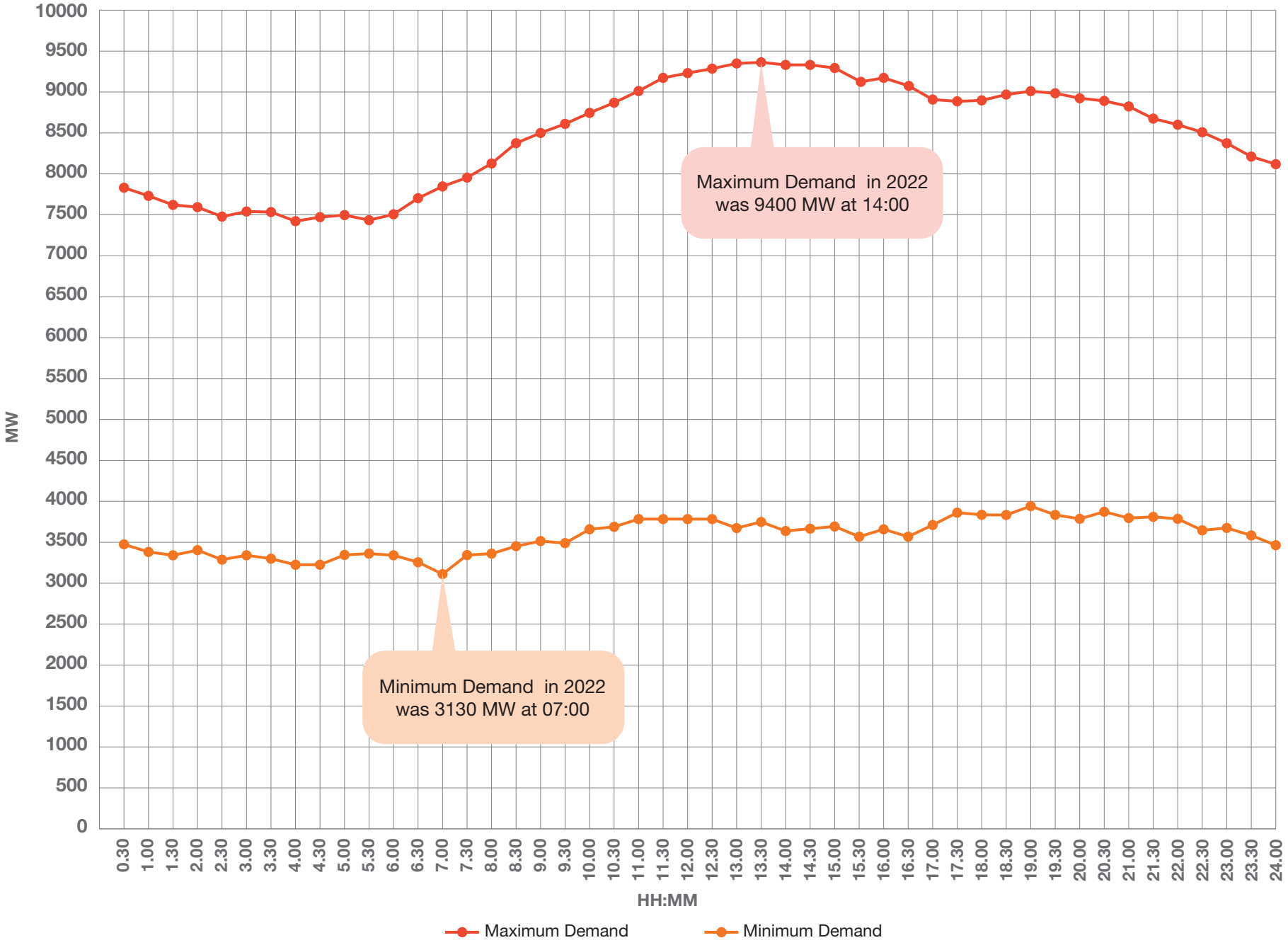
* Note: Starting 2020, Load factors calculations have been revised by including assist generation which is captive generation from some of the bulk customers and auxiliary power from QEWC stations and including Qatalum Temporary load.

# ET9 ANNUAL GROWTH (%) FROM 2021 TO 2022

| Demand Type | Peak Demand (MW) Growth |
|---|---|
| System Maximum | 5.9 % |
| * Industrial Maximum | 8.9 % |
| Domestic Maximum | 6.3 % |

* Maximum industrial demand excluding Qatalum

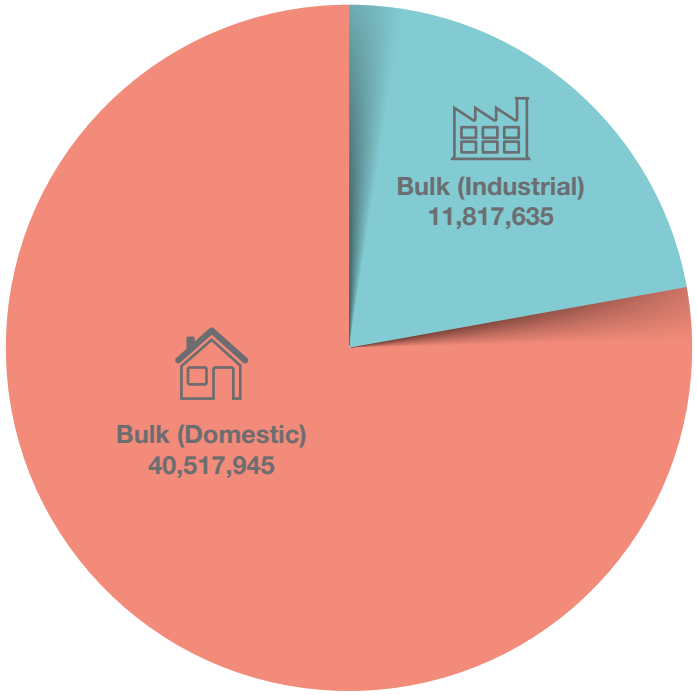
# System maximum and minimum demand (mw)
# Half hourly load curve in 2022



# ET10 SECTORAL CONSUMPTION IN 2022, MWh

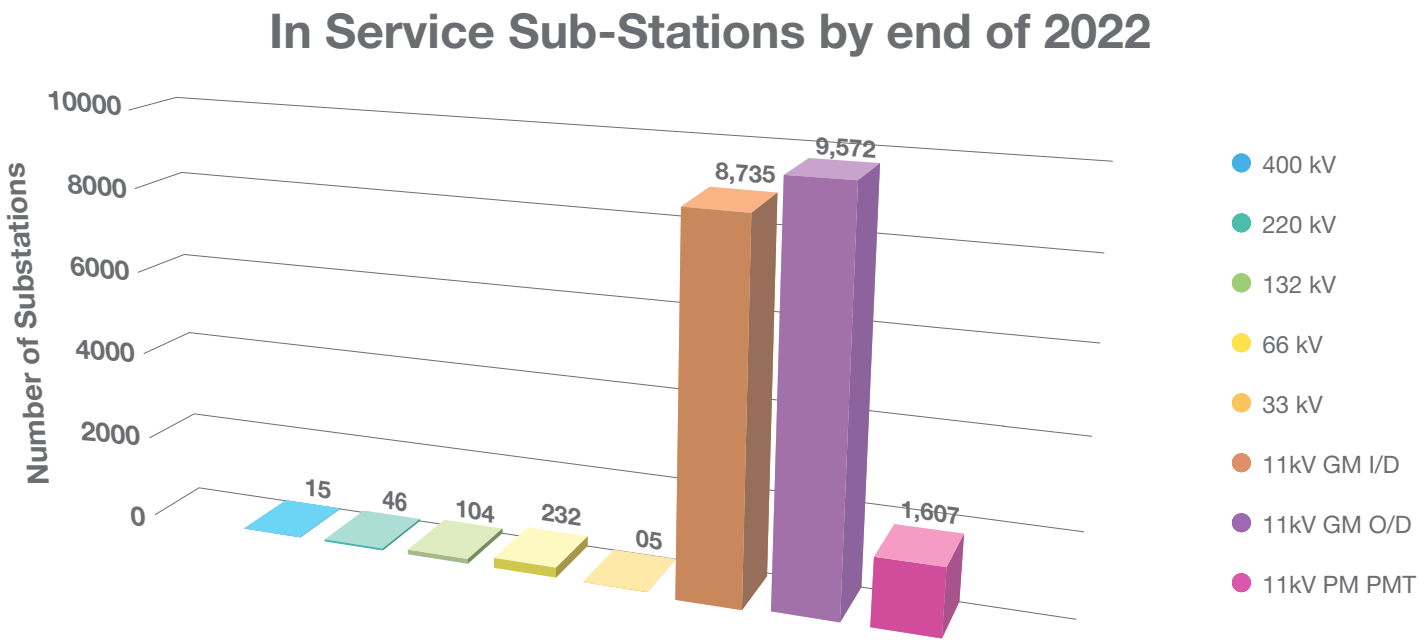
| Sector | Bulk (Industrial) | Domestic | Auxiliary | Transmission and Distribution Losses | Total Injected Generation | Total Electricity Generation |
|---|---|---|---|---|---|---|
| **Consumption, MWh -2022** | 11,817,635 | 40,517,945 | 3,298,081 | 3,121,323 | 51,954,816 | 54,623,284 |

## Sectorial consumption (MWh) in 2022



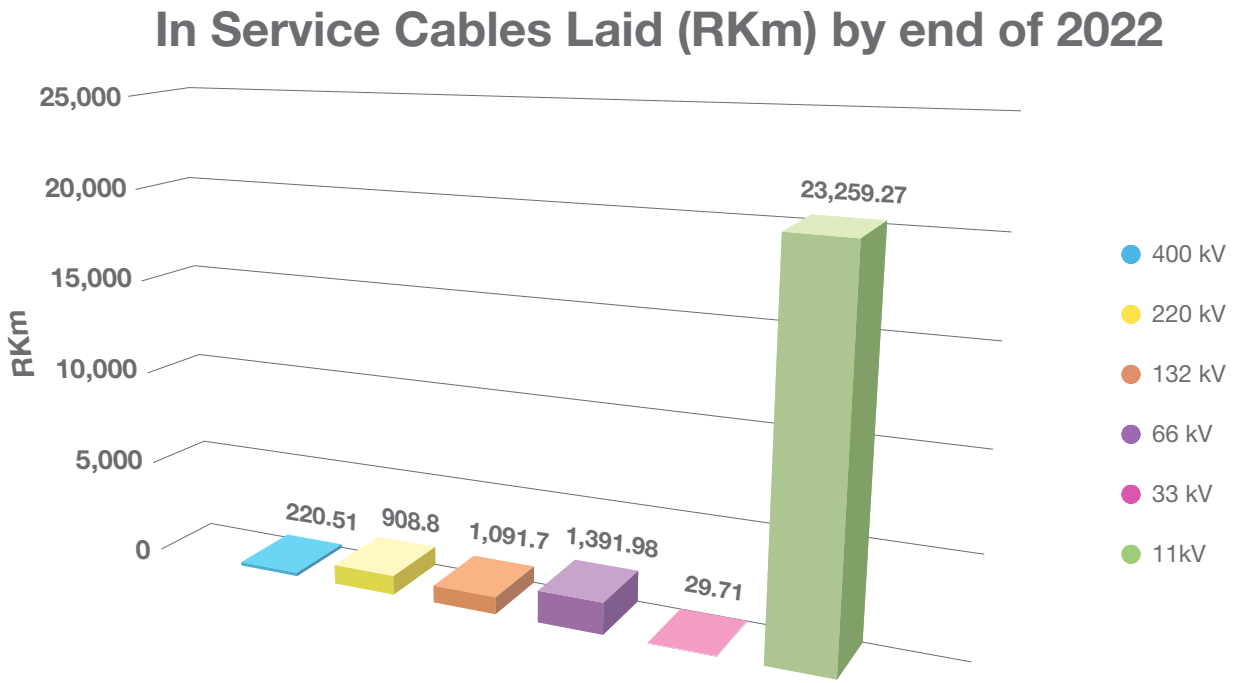
# ET11 SUB-STATIONS

| SUBSTATIONS | 400 kV | 220 kV | 132 kV | 66 kV | 33 kV | 11kV GM I/D | 11kV GM O/D | 11kV PM PMT |
|---|---|---|---|---|---|---|---|---|
| **In service (as at 31/12/2017)** | 13 | 38 | 54 | 209 | 06 | 5,889 | 7,720 | 1,440 |
| **Commissioned -2018** | 01 | 01 | 17 | 14 | 0 | 599 | 413 | 58 |
| **Commissioned -2019** | 0 | 01 | 09 | 12 | 0 | 706 | 701 | 42 |
| **Commissioned -2020** | 01 | 02 | 18 | 07 | 01 | 558 | 424 | 71 |
| **Commissioned -2021** | 0 | 03 | 04 | 06 | 0 | 419 | 312 | 70 |
| **Commissioned -2022** | 0 | 01 | 08 | 05 | 0 | 683 | 300 | 46 |
| **In service (as at 31/12/2022)** | 15 | 46 | 104 | 232 | 05 | 8,735 | 9,572 | 1,607 |



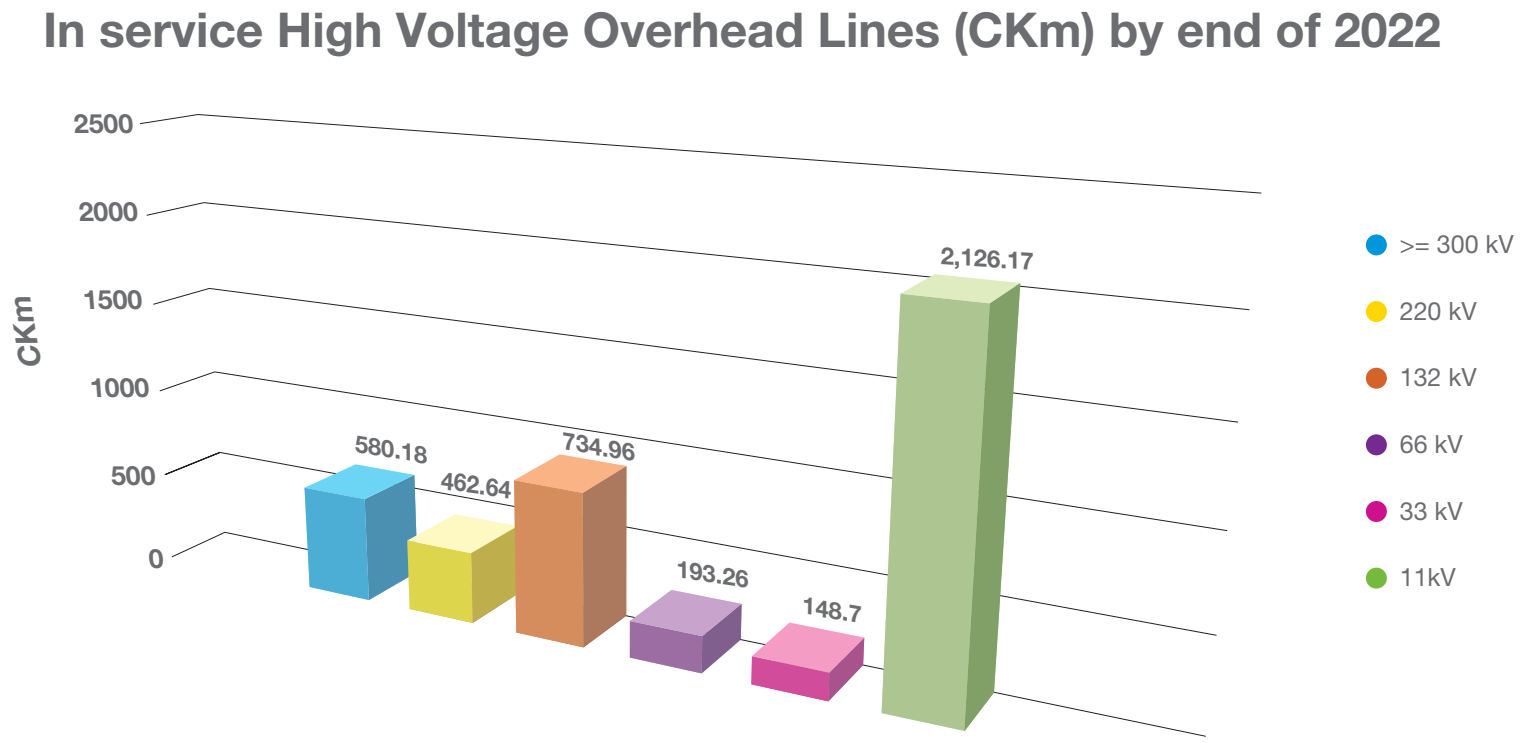
# ET12 CABLES LAID (RKM)

| Period Commissioned | 400 kV | 220 kV | 132 kV | 66 kV | 33 kV | 11 kV |
|---|---|---|---|---|---|---|
| **In service (as at 31/12/2017)** | 159.633 | 877.744 | 706.497 | 1,386.216 | 28.138 | 15,960.75 |
| **Commissioned -2018** | 00.351 | 05.742 | 83.471 | 63.286 | 02.676 | 1,983 |
| **Commissioned -2019** | 01.147 | 15.7 | 86.08 | 54.83 | 01.08 | 1,713 |
| **Commissioned -2020** | 32.395 | 46.249 | 156.422 | 18.336 | 0 | 1,180.48 |
| **Commissioned -2021** | 0 | 05.41 | 19.02 | 21.41 | 00.17 | 1,124.63 |
| **Commissioned -2022** | 0 | 23.52 | 20.8 | 20.56 | 00.322 | 1,297 |
| **In service (as at 31/12/2022)** | 220.51 | 908.8 | 1,091.7 | 1,391.98 | 29.71 | 23,259.27 |



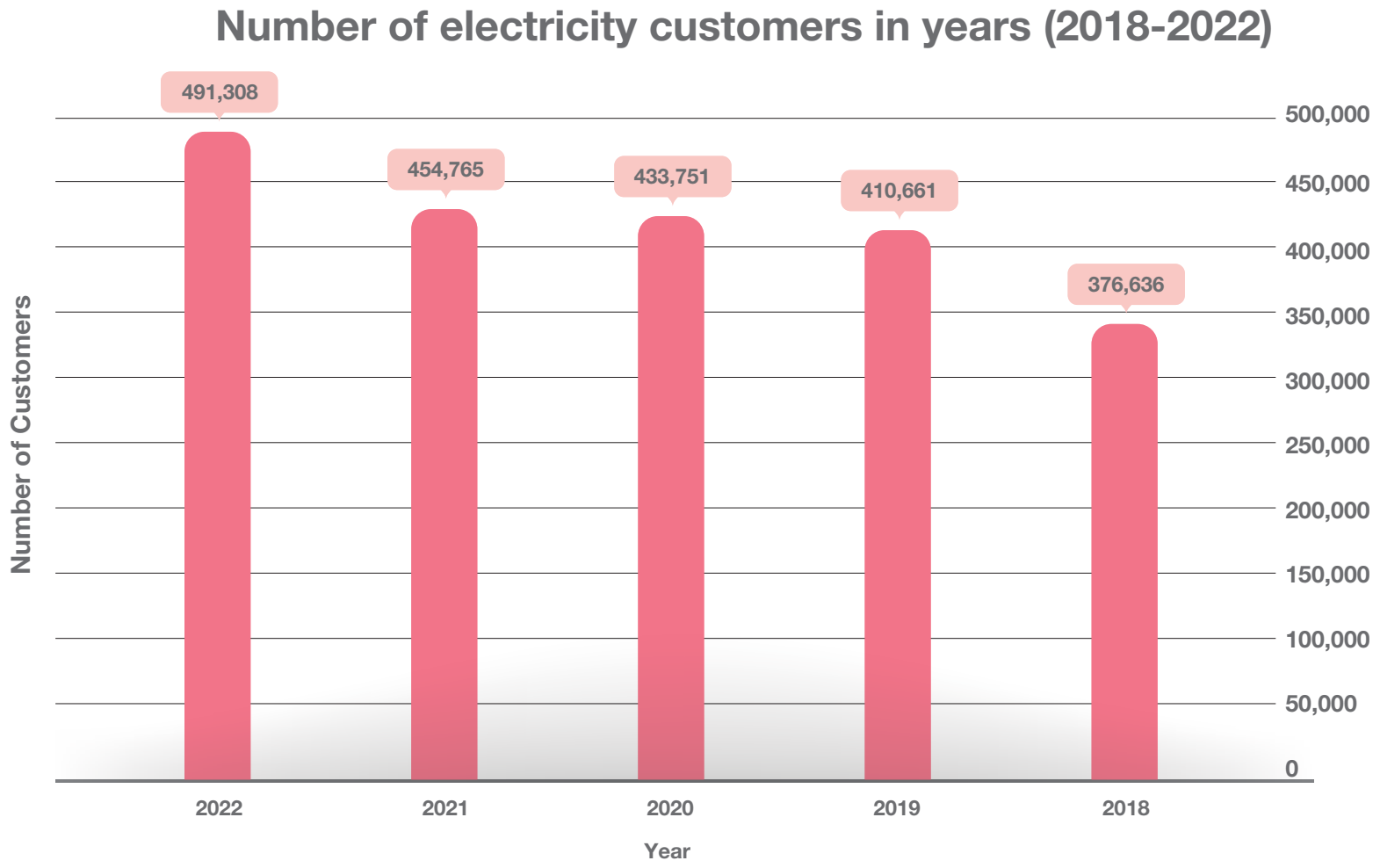
# ET13 HIGH VOLTAGE OVERHEAD LINES (CKM)

| Period | >= 300 kV | 220 kV | 132 kV | 66 kV | 33 kV | 11 kV |
|---|---|---|---|---|---|---|
| **In service (as at 31/12/2017)** | 548.28 | 392.37 | 625.97 | 214.12 | 148.7 | 2,038.2 |
| **Commissioned -2018** | 31.9 | 0 | 51.58 | 0 | 0 | 22.18 |
| **Commissioned -2019** | 0 | 0 | 0 | 0 | 0 | 39 |
| **Commissioned -2020** | 0 | 0 | 09.38 | 05.52 | 0 | 26.9 |
| **Commissioned -2021** | 0 | 0 | 27.24 | 0 | 0 | 18.17 |
| **Commissioned -2022** | 0 | 69 | 21 | 0 | 0 | 26.101 |
| **In service (as at 31/12/2022)** | 580.18 | 462.64 | 734.96 | 193.26 | 148.7 | 2,126.17 |



# ET14 NUMBER OF ELECTRICITY CUSTOMERS FROM 2018 TO 2022

| Year | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|
| No Of Customers | 376,636 | 410,661 | 433,751 | 454,765 | 491,308 |
| Annual Growth (%) | 3.3% | 9% | 5.6 % | 4.8% | 7.4% |



# ET15 AVERAGE ELECTRICITY PER CAPITA CONSUMPTION

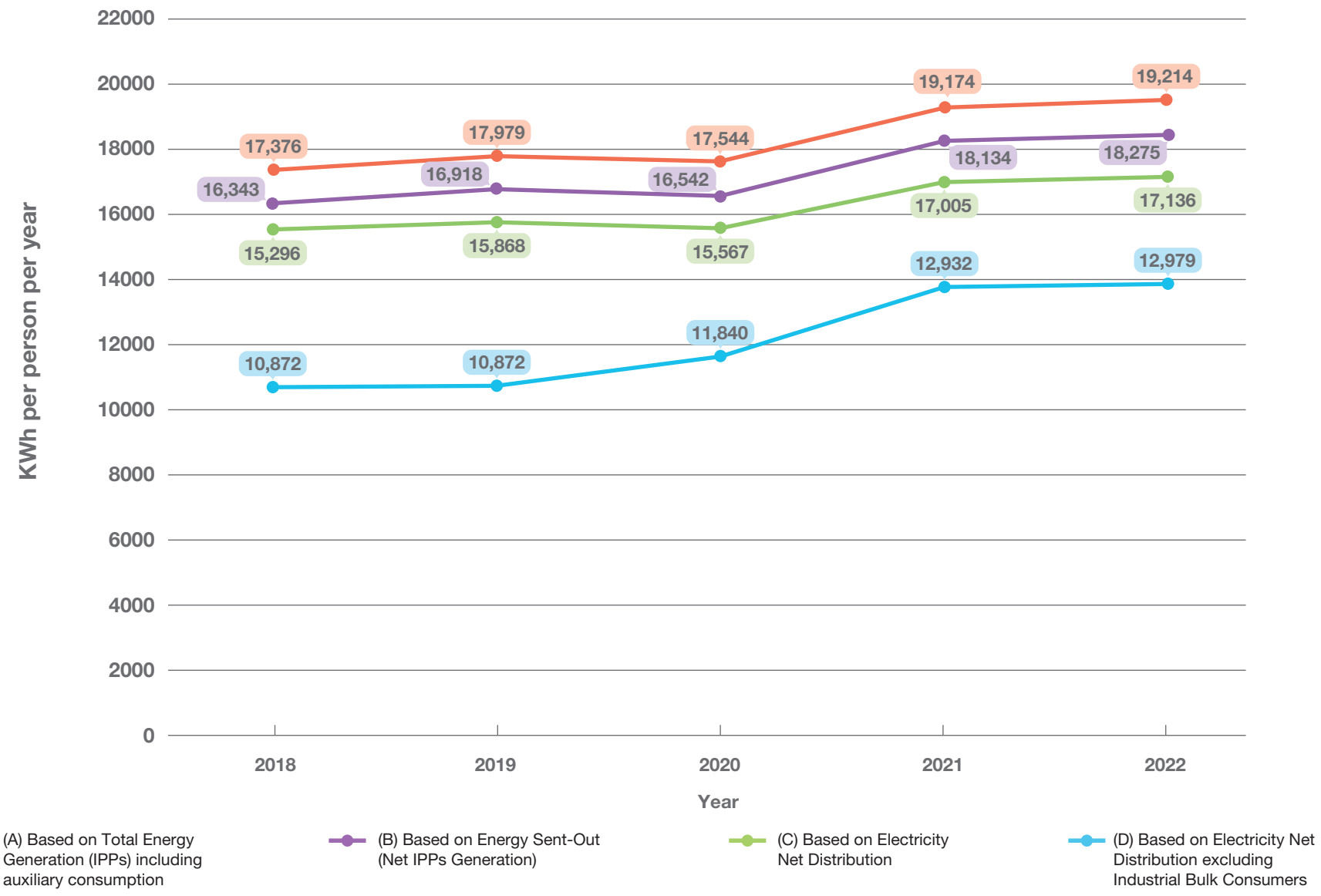
| Year | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|
| Population | 2,757,437 | 2,773,885 | 2,807,805 | 2,693,301 | 2,842,958 |
| Population Annual Increase(%) | 2.10% | 0.60% | 1.22% | -4.08% | 5.56% |
| Total Energy Generation including all auxiliary consumption GWh | 47,913 | 49,873 | 49,259 | 51,641 | 54,623 |
| Energy Transmitted (Sent out) GWh = Generation minus auxiliary consumption | 44,654 | 46,435 | 45,825 | 48,329 | 51,325 |
| Electricity Net Distribution GWh = Injected Generation minus Real losses | 42,177 | 43,550 | 43,710 | 45,798 | 48,716 |
| Electricity Consumption GWh (Excluding Bulk Industrial) | 30,082 | 31,539 | 33,245 | 34,949 | 37,016 |
| **Average Electricity Per Capita Consumption: (KWh Per Person per Year)** | | | | | |
| (A) Based on Total Energy Generation (IPPs) including auxiliary consumption | 17,376 | 17,979 | 17,544 | 19,174 | 19,214 |
| (B) Based on Energy Sent-Out (Net IPPs Generation) | 16,343 | 16,918 | 16,542 | 18,134 | 18,275 |
| (C) Based on Electricity Net Distribution | 15,296 | 15,868 | 15,567 | 17,005 | 17,136 |
| (D) Based on Electricity Net Distribution excluding Industrial Bulk Consumers | 10,872 | 11,497 | 11,840 | 12,932 | 12,979 |

* Electricity Net Distribution GWh = Injected Generation – Export to GCCIA – T&D losses

** Electricity Net Distribution GWh excluding Industrial Bulk Consumers = Injected Generation – Export to GCCIA – T&D losses - Industrial Bulk Consumers. Starting 2017,

***Note:*** *Starting from year 2017, Per Capita Consumption calculation is based on maximum population for the year.*

# Electricity per capita consumption (Kwh per person per year)

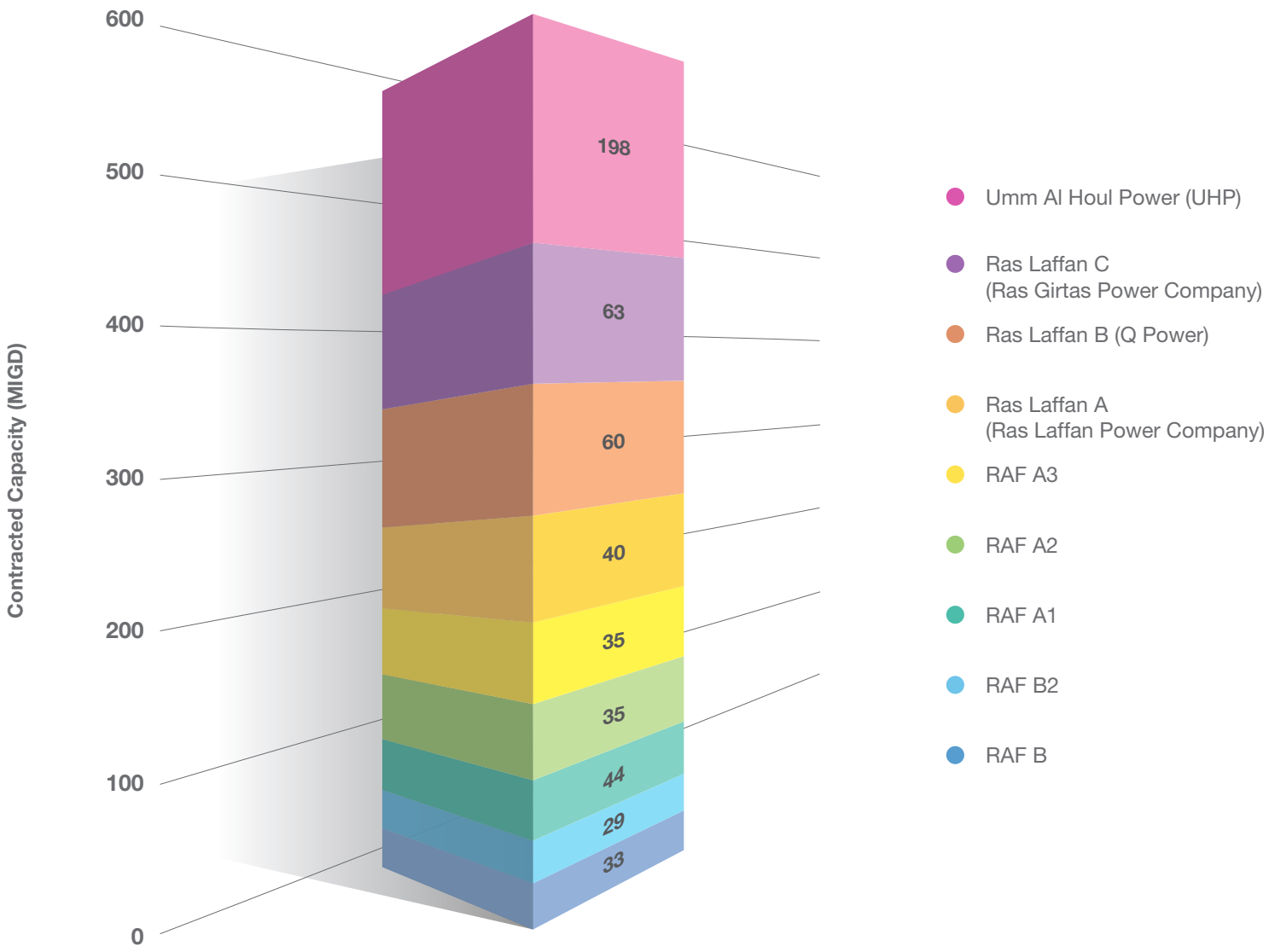


# WATER STATISTICS

# WT1 CONTRACTED CAPACITIES BY IPWP AT END OF 2022

| Independent Power & Water Producer | Contracted Capacity - Water (MIGD) | Mm3/Day |
|---|---|---|
| **Qatar Electricity & Water Company** | | |
| Ras Abu Fontas RAF A1 | 44 | 00.20 |
| Ras Abu Fontas RAF A2 | 35 | 00.16 |
| Ras Abu Fontas RAF A3 | 35 | 00.16 |
| Ras Abu Fontas RAF B | 33 | 00.15 |
| Ras Abu Fontas RAF B2 | 29 | 00.13 |
| **Sub-Total** | **375** | **01.70** |
| **Ras Laffan** | | |
| Ras Laffan A (Ras Laffan Power Company) | 40 | 00.18 |
| Ras Laffan B (Q Power) | 60 | 00.27 |
| Ras Laffan C (Ras Girtas Power Company) | 63 | 00.29 |
| **Sub-Total** | **163** | **00.74** |
| **Umm Al Houl Power Company** | | |
| Umm Al Houl Power (UHP) | 198 | 00.90 |
| **Total Capacity** | **538** | **02.44** |

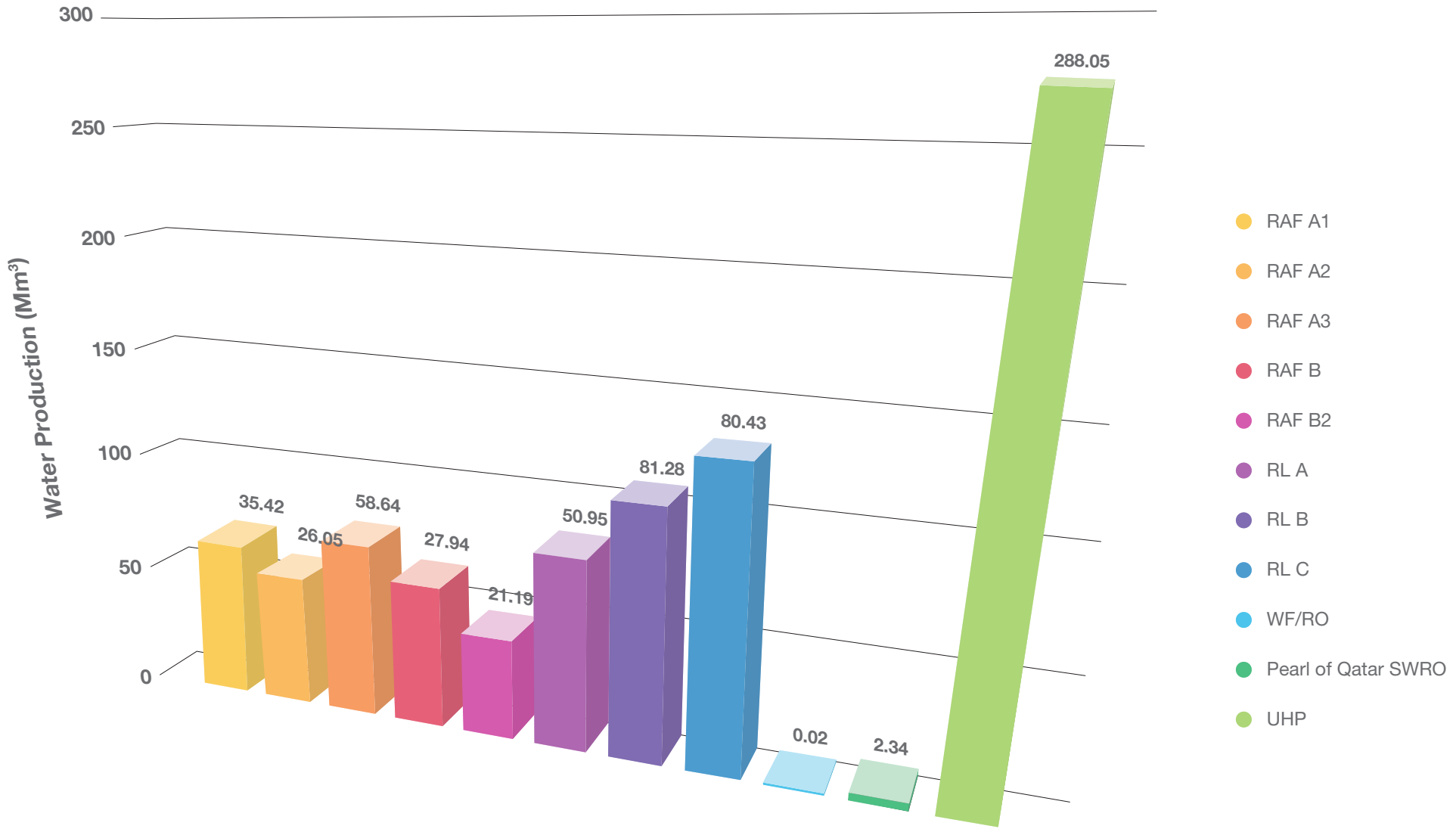
# Water contracted capacity by iwpps in year 2022



# WT2 WATER PRODUCTION IN 2022

| IWPPs | Water Production (Million Cubic Meters) | Million Imperial Gallons (MIG) |
|---|---|---|
| RAF A1 | 35.42 | 7,793 |
| RAF A2 | 26.05 | 5,730 |
| RAF A3 | 58.64 | 12,901 |
| RAF B | 27.94 | 6,147 |
| RAF B2 | 21.19 | 4,662 |
| RL A | 50.95 | 11,209 |
| RL B | 81.28 | 17,883 |
| RL C | 80.43 | 17,695 |
| WF/RO | 0.02 | 4 |
| Pearl of Qatar SWRO | 2.34 | 515 |
| UHP | 288.05 | 63,372 |
| **Total** | **672.32** | **147,909.83** |

# Water Production ($Mm^3$) In Year 2022



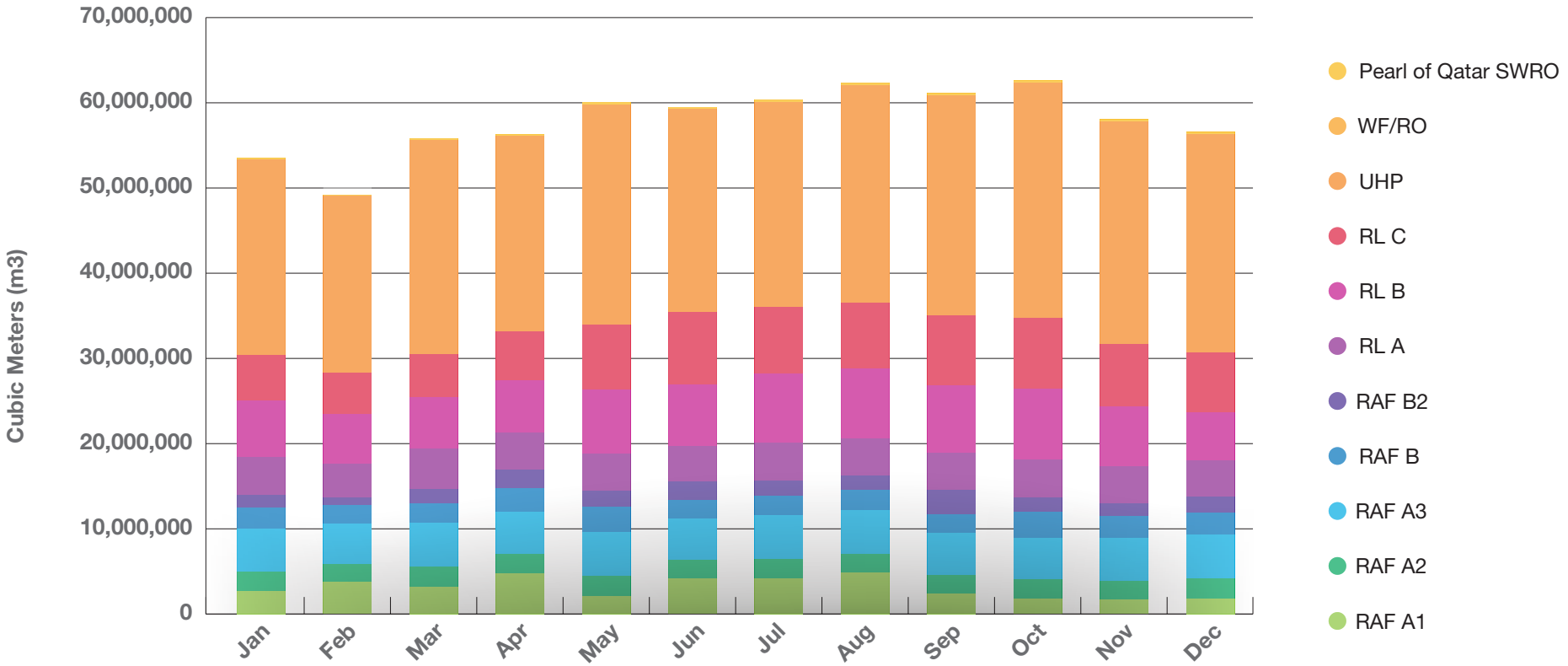
# WT3 POTABLE WATER PRODUCTION CAPACITIES FROM WELLS AND RE-VERSE OSMOSIS (RO)

| Well fields and RO | Total No. of Wells | Usable Wells | Wells with Pumps | Designed Capacity, m3/Day | Actual Average Output, m3/Day | Remarks |
|---|---|---|---|---|---|---|
| Al Rushidiyah | 84 | 84 | 84 | 24,192 | 0 | All wells have been rehabilitated and ready to use during emergency |
| Al Dibiyah | 87 | 87 | 87 | 25,056 | 0 | All wells have been rehabilitated and ready to use during emergency |
| Al Judiyah | 41 | 41 | 41 | 6,888 | 0 | All wells have been rehabilitated and ready to use during emergency |
| Al Otoriyah | 80 | 80 | 80 | 23,040 | 0 | All wells have been rehabilitated and ready to use during emergency. |
| Abu Thailah | 30 | 30 | 30 | 8,640 | 0 | All wells have been rehabilitated and ready to use during emergency. |
| Old Jemiliyah | 0 | 0 | 0 | 0 | 0 | All wells are not usable |
| Abu Samra RO Plant (Old) | 0 | 0 | 0 | 0 | 0 | Old RO Plant decommissioned and subject for demolition |
| Abu Samra RO Plant (new) | 5 | 5 | 5 | 2000 | 20 | New RO Plant on standby as back-up and weekly routine operation is done to maintain its healthiness. Old RO Plant decommissioned and subject for demolition |
| Army North Camp RO Plant | 5 | 4 | 5 | 1,200 | 33 | RO Plant is used as back-up in case there is shortage of water supply to the North Army Camp network |
| **Total** | **332** | **331** | **332** | **91016** | **53** | |

# WT4 MONTHLY WATER PRODUCTION, CUBIC METERS IN 2022

| Month | RAF A1 | RAF A2 | RAF A3 | RAF B | RAF B2 | RL A | RL B | RL C | UHP | WF/RO* | Pearl of Qatar | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Jan | 2,558,234 | 2,164,314 | 4,908,800 | 2,335,118 | 1,508,989 | 4,306,744 | 6,375,201 | 5,071,312 | 22,429,560 | 2,625 | 84,825 | **51,745,722** |
| Feb | 3,575,283 | 2,057,940 | 4,548,108 | 2,058,914 | 868,300 | 3,892,256 | 5,640,509 | 4,607,238 | 20,242,831 | 1,902 | 54,996 | **47,548,277** |
| Mar | 3,099,483 | 2,253,223 | 4,911,152 | 2,185,163 | 1,662,347 | 4,572,344 | 5,802,032 | 4,905,668 | 24,420,618 | 2,049 | 101,177 | **53,915,256** |
| Apr | 4,548,886 | 2,145,279 | 4,874,015 | 2,618,805 | 2,109,072 | 4,190,352 | 5,843,586 | 5,651,227 | 22,261,980 | 1,301 | 162,626 | **54,407,129** |
| May | 1,994,425 | 2,266,506 | 5,020,096 | 2,731,540 | 1,787,318 | 4,332,552 | 7,295,012 | 7,237,571 | 25,113,345 | 2,242 | 219,088 | **57,999,695** |
| Jun | 3,920,350 | 2,097,934 | 4,818,544 | 2,022,485 | 2,008,999 | 4,151,888 | 6,911,914 | 8,180,264 | 23,121,104 | 662 | 273,084 | **57,507,228** |
| Jul | 4,019,787 | 2,154,966 | 5,023,664 | 2,104,221 | 1,719,732 | 4,324,304 | 7,874,006 | 7,596,839 | 23,290,158 | 295 | 300,936 | **58,408,908** |
| Aug | 4,641,882 | 2,106,768 | 5,036,858 | 2,148,996 | 1,678,111 | 4,313,224 | 7,806,361 | 7,560,804 | 24,663,273 | 520 | 311,096 | **60,267,893** |
| Sep | 2,262,866 | 2,082,393 | 4,873,120 | 1,989,368 | 2,835,567 | 4,178,440 | 7,654,297 | 7,875,671 | 25,115,150 | 1,245 | 277,254 | **59,145,370** |
| Oct | 1,635,605 | 2,237,744 | 4,738,392 | 2,798,135 | 1,714,203 | 4,278,192 | 8,098,714 | 7,976,867 | 26,863,628 | 1,518 | 258,238 | **60,601,236** |
| Nov | 1,521,426 | 2,175,555 | 4,874,136 | 2,428,404 | 1,581,933 | 4,147,400 | 6,731,358 | 7,053,066 | 25,434,392 | 460 | 190,430 | **56,138,560** |
| Dec | 1,642,358 | 2,304,685 | 5,011,906 | 2,521,131 | 1,717,512 | 4,261,104 | 5,251,272 | 6,716,226 | 25,096,387 | 1,463 | 108,100 | **54,632,144** |
| **Total** | **35,420,585** | **26,047,307** | **58,638,791** | **27,942,280** | **21,192,083** | **50,948,800** | **81,284,262** | **80,432,752** | **288,052,427** | **16,282** | **2,341,850** | **672,317,419** |

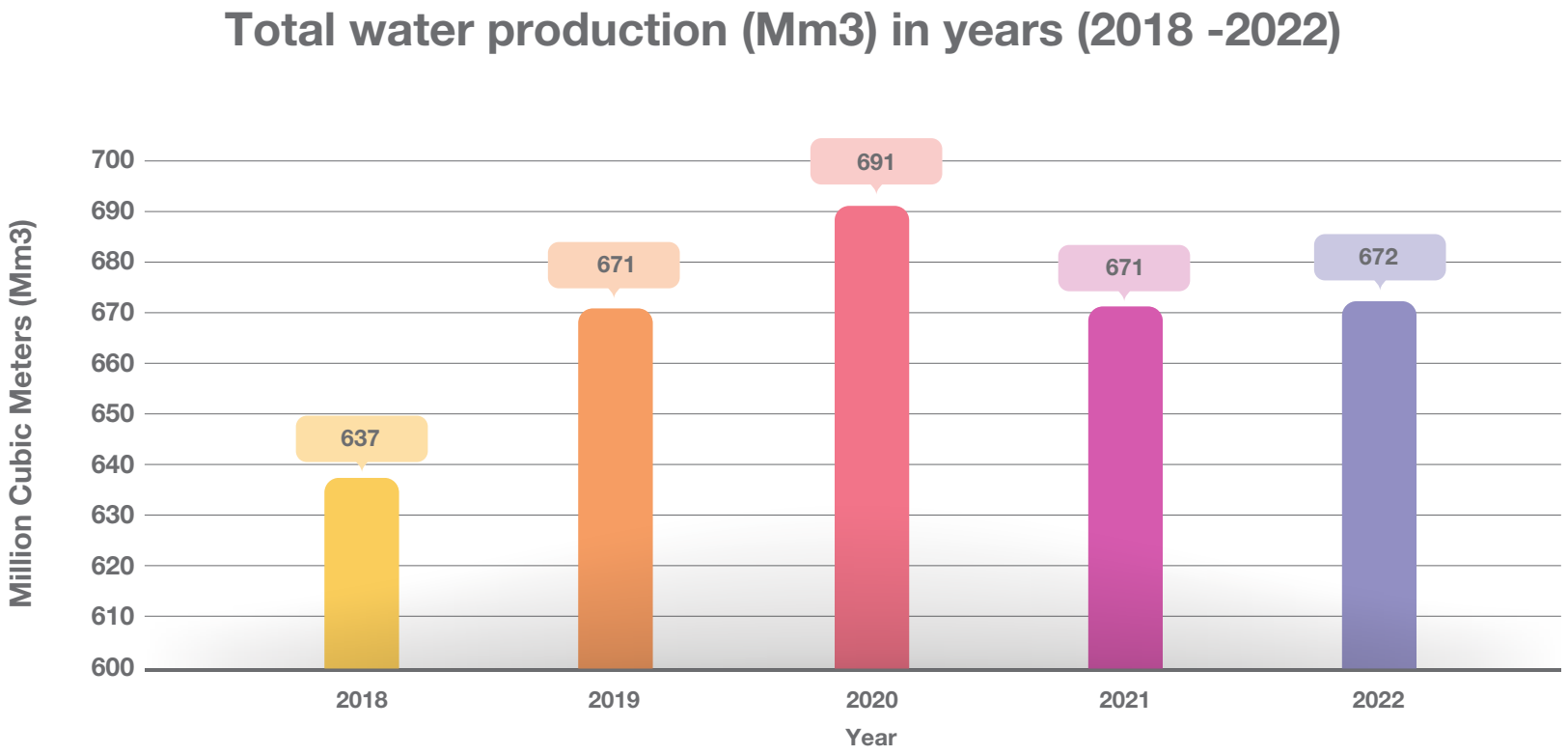
# Monthly water production (m3) in year 2022



# WT5 TOTAL ANNUAL WATER PRODUCTION, MILLION CUBIC METERS

| Water Production | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|
| Production, Mm3* | 637 | 671 | 691 | 671 | 672 |
| Annual Growth (%) | 5.1% | 5.4% | 3.0% | -2.9% | 0.1% |
| Average Growth last five years (%) | | | | | 2.1% |

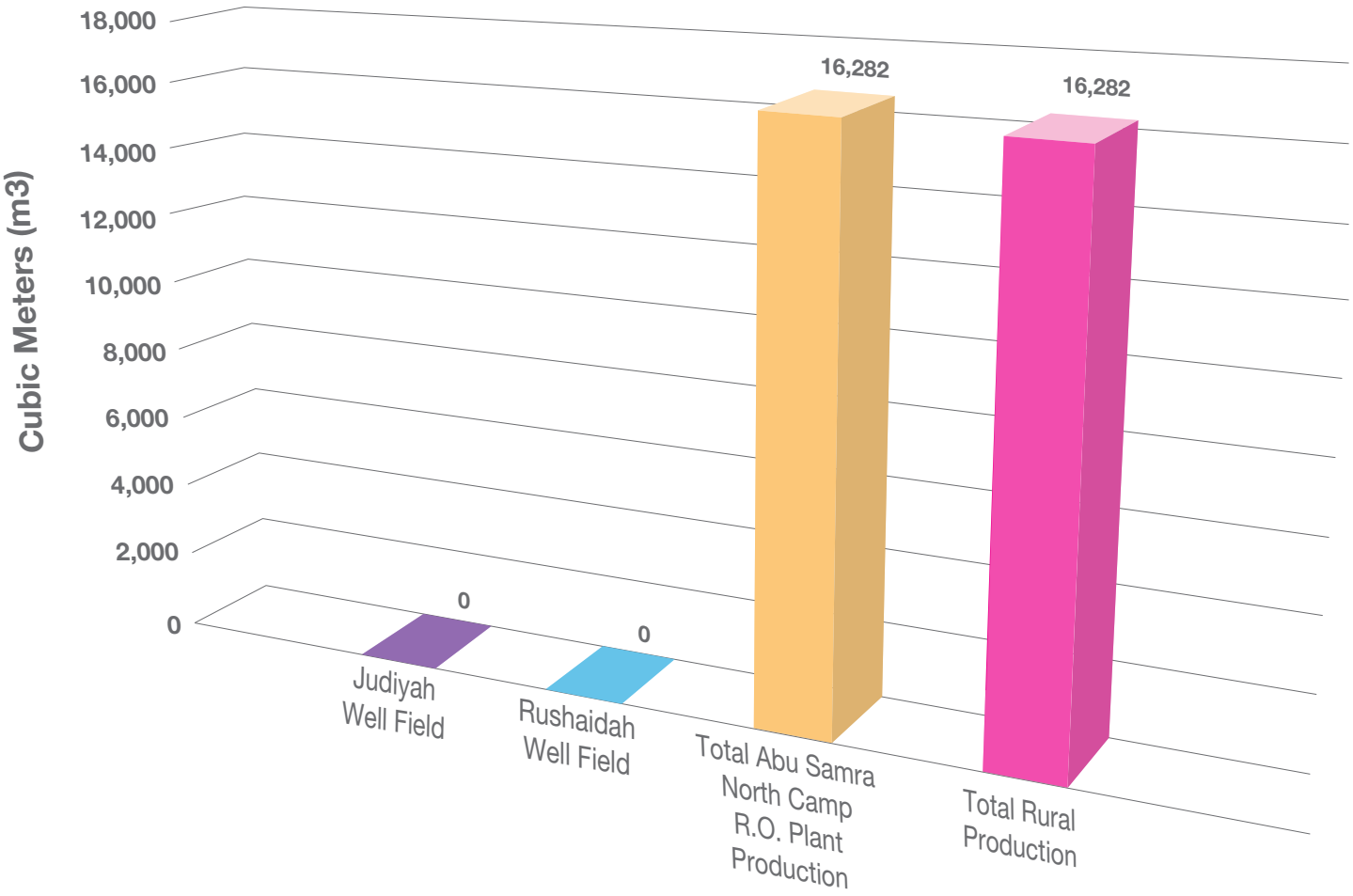
* The water production is including Pearl Qatar RO plant



# WT6 RURAL POTABLE WATER PRODUCTION, CUBIC METERS

| Month | Judiyah Well Field | Rushaidah Well Field | Total Abu Samra North Camp R.O. Plant Production | Total Production |
|---|---|---|---|---|
| Jan | 0 | 0 | 2,625 | 2,625 |
| Feb | 0 | 0 | 1,902 | 1,902 |
| Mar | 0 | 0 | 2,049 | 2,049 |
| Apr | 0 | 0 | 1,301 | 1,301 |
| May | 0 | 0 | 2,242 | 2,242 |
| Jun | 0 | 0 | 662 | 662 |
| Jul | 0 | 0 | 295 | 295 |
| Aug | 0 | 0 | 520 | 520 |
| Sep | 0 | 0 | 1,245 | 1,245 |
| Oct | 0 | 0 | 1,518 | 1,518 |
| Nov | 0 | 0 | 460 | 460 |
| Dec | 0 | 0 | 1,463 | 1,463 |
| **Total** | **0** | **0** | **16,282** | **16,282** |

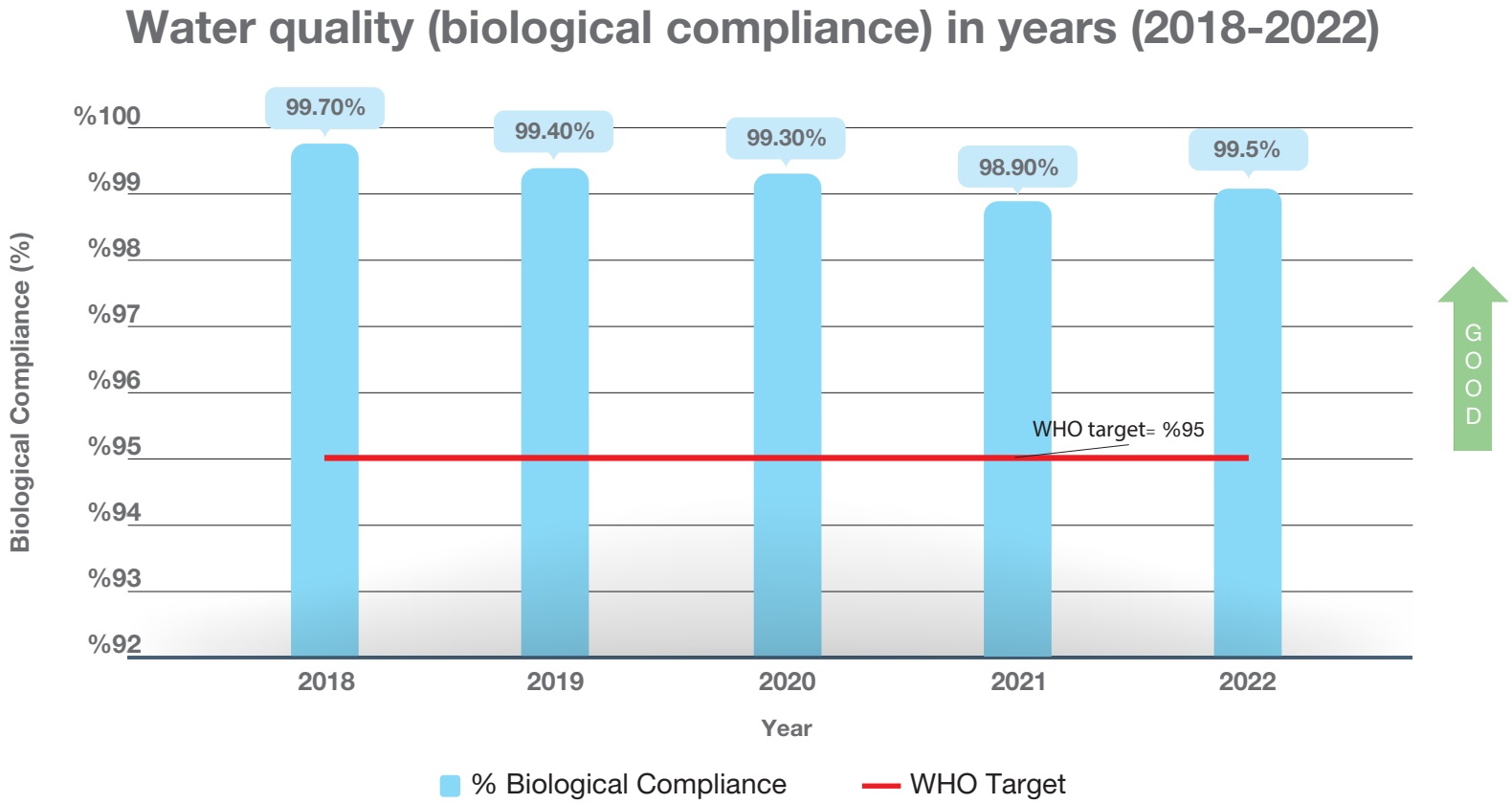
# Rural potable water production (m3) in year 2022




*Note: Judiyah and Rushaidah wellfields has been rehabilitated and ready to use during emergency*

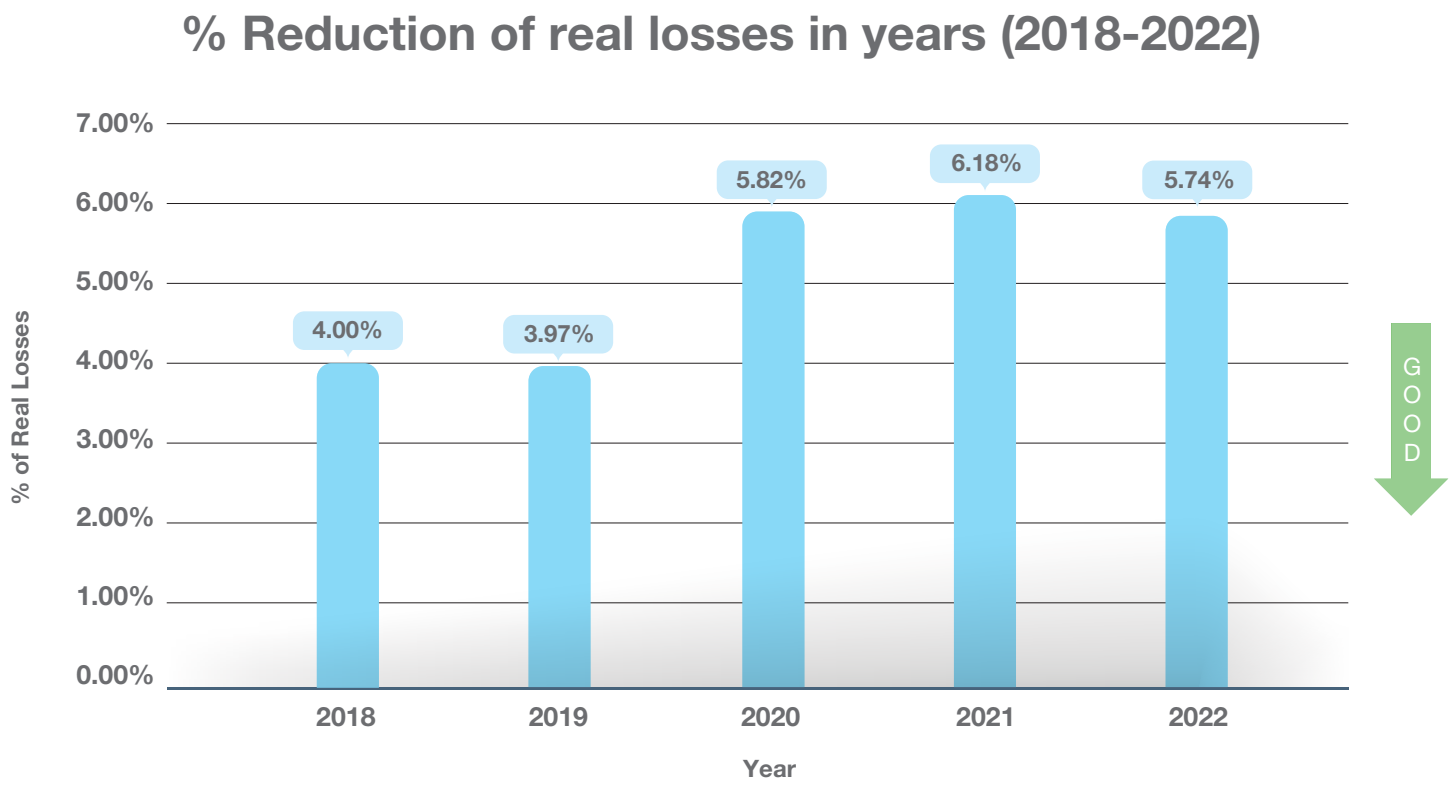
# WT7 WATER QUALITY (BIOLOGICAL COMPLIANCE)

| Year | % Biological Compliance | WHO Target |
|---|---|---|
| 2018 | 99.70% | 95% |
| 2019 | 99.40% | 95% |
| 2020 | 99.30% | 95% |
| 2021 | 98.90% | 95% |
| 2022 | 99.50% | 95% |



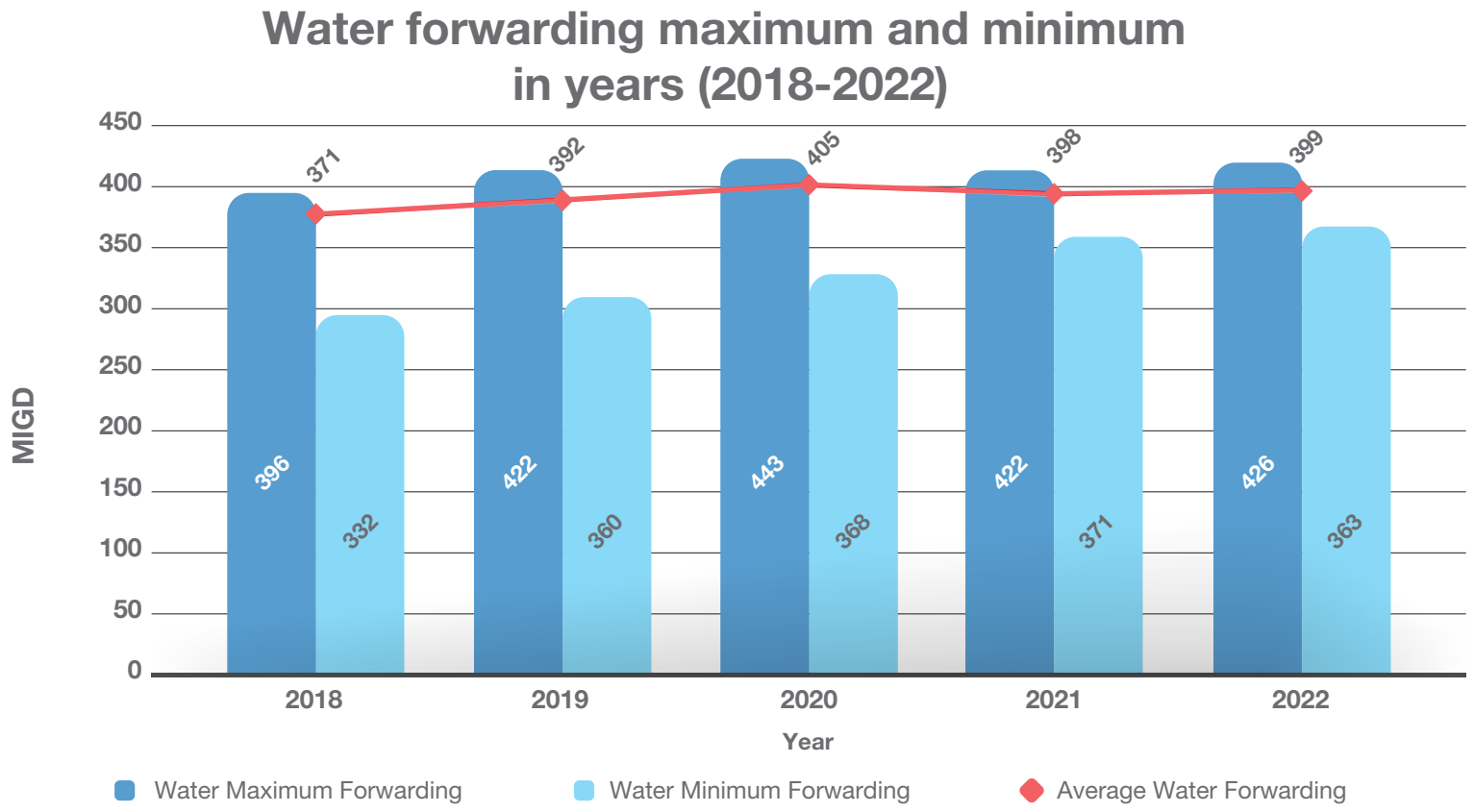
# WT8 WATER REAL LOSSES REDUCTION

| Year | % Real Losses |
|---|---|
| 2018 | 4.00% |
| 2019 | 3.97% |
| 2020 | 5.82% |
| 2021 | 6.18% |
| 2022 | 5.74% |



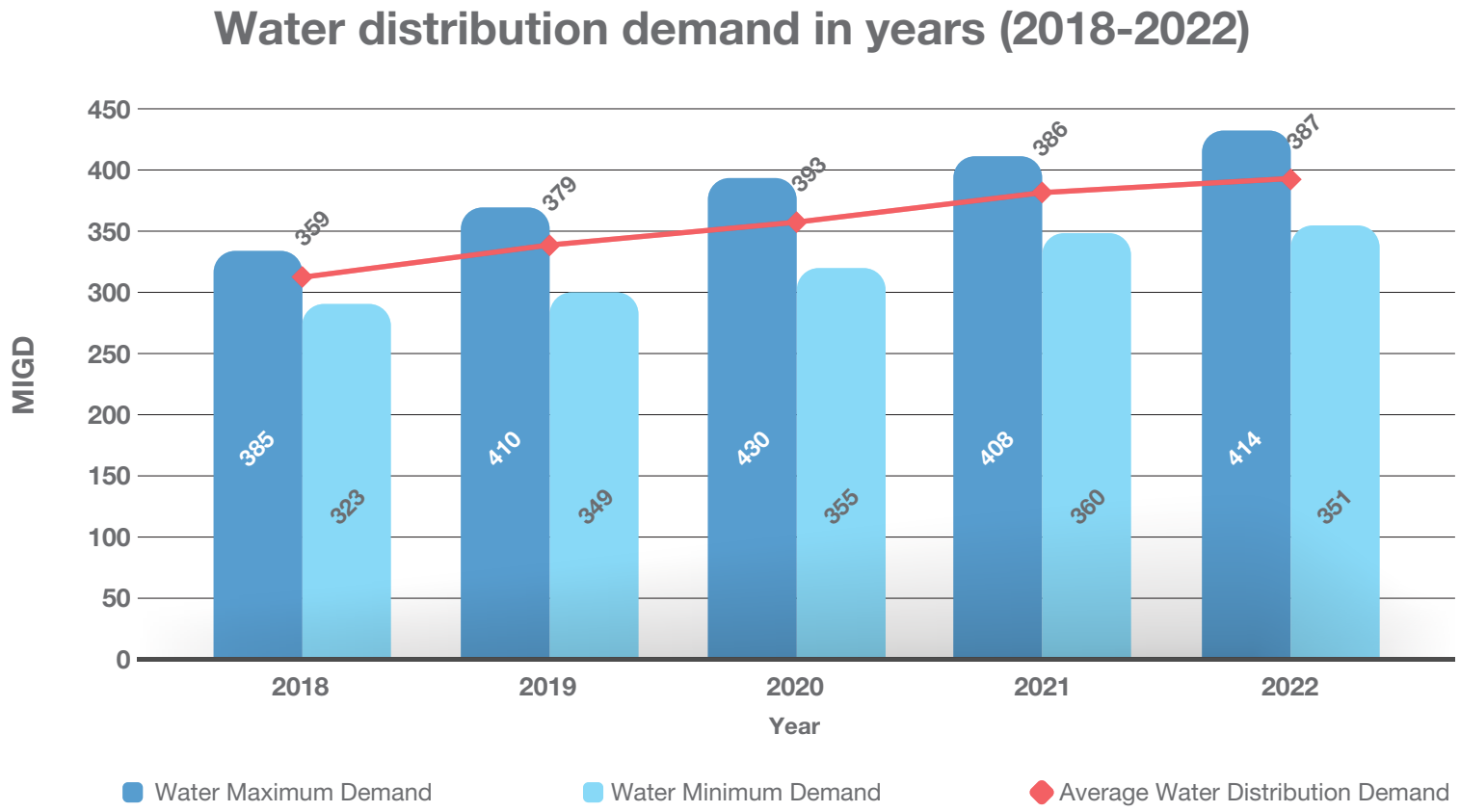
# WT9 WATER FORWARDING MAXIMUM AND MINIMUM DEMAND IN YEARS (2018-2022)

| Year | Average Forwarding, MIGD | Maximum Forwarding MIGD | Maximum Forwarding Month | Minimum Forwarding, MIGD | Minimum Forwarding Month |
|---|---|---|---|---|---|
| 2018 | 371 | 396 | September | 332 | January |
| 2019 | 392 | 422 | September | 360 | February |
| 2020 | 405 | 443 | August | 368 | January |
| 2021 | 398 | 422 | June | 371 | January |
| 2022 | 399 | 426 | September | 363 | January |



# WT10 WATER DISTRIBUTION MAXIMUM AND MINIMUM DEMAND IN YEARS (2018-2022)

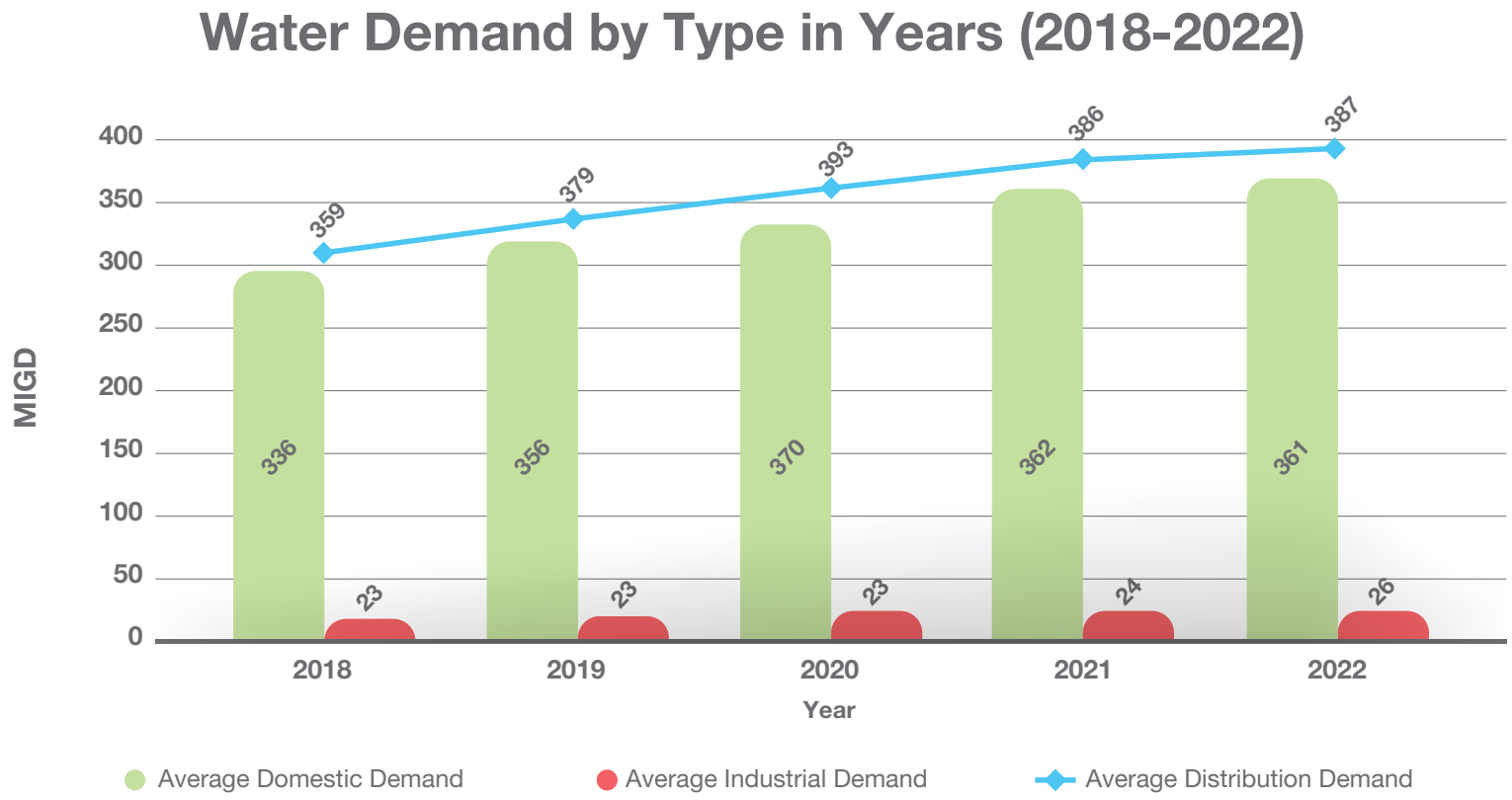
| Year | Average Distribution Demand, MIGD | Growth (%) | Maximum Demand, MIGD | Maximum Demand Month | Minimum Demand, MIGD | Minimum Demand Month |
|---|---|---|---|---|---|---|
| 2018 | 359 | 4.8 | 385 | September | 323 | January |
| 2019 | 379 | 5.5 | 410 | September | 349 | February |
| 2020 | 393 | 3.7 | 430 | August | 355 | January |
| 2021 | 386 | -1.7 | 408 | June | 360 | February |
| 2022 | 387 | 0.25 | 414 | September | 351 | January |



# WT11 WATER DEMAND BY TYPE IN YEARS (2018-2022)

| Water Demand By Type, MIGD | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|
| Average Distribution Demand | 359 | 379 | 393 | 386 | 387 |
| Average Industrial Demand | 23 | 23 | 23 | 24 | 26 |
| Average Domestic Demand | 336 | 356 | 370 | 362 | 361 |

*Demand by type (Industrial/Domestic) are estimate only by NWCC. CSD can provide more accurate data according to customer type.*



# WT12 LENGTH OF MAINS LAID FROM 2018 TO 2022 IN METERS

| Pipe Diameter, millimetres | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|
| 80 | 676 | 141 | 117 | 195.68 | 00 |
| 100 | 78,210 | 82,973 | 48,079 | 43,682 | 27 |
| 110 | 348 | 3 | 0.1 | 29.276 | 00 |
| 125 | 602 | - | - | - | 0 |
| 150 | 88,909 | 95,729 | 38,027 | 41,299 | 34 |
| 160 | - | - | - | 42.942 | |
| 180 | 97 | - | 8 | - | 00 |
| 200 | 45,314 | 69,195 | 51,609 | 41,276 | 16 |
| 225 | 40 | - | 2 | | 00 |
| 250 | 974 | 25 | 61 | 583.56 | 00 |
| 280 | - | - | - | - | 0 |
| 300 | 55,613 | 63,125 | 36,711 | 26,756 | 13 |
| 315 | 60 | - | 4 | 97.646 | 00 |
| 355 | 3,591 | 13 | 2 | 29.076 | 00 |
| 400 | 17,862 | 11,142 | 10,597 | 5,450 | 02 |
| 450 | 5 | 1 | - | - | 0 |
| 500 | 933 | 199 | 2 | 105.18 | 00 |
| 600 | 29,608 | 22,664 | 9,550 | 5,814 | 02 |
| 630 | - | - | - | 113.22 | - |
| 700 | 30 | 1 | 2 | 0.737 | 0 |
| 800 | 1,631 | 455 | 3 | - | 0 |
| 900 | 21,818 | 11,585 | 8,620 | 3,531 | 01 |
| 1,000 | 712 | 31 | 352 | 232.68 | 0 |
| 1,200 | 10,727 | 6,458 | 2,163 | 1,032 | 01 |
| 1,400 | 8,509 | 5,343 | 274 | 78.93 | 00 |
| 1,600 | 17,198 | 10,470 | 1,477 | 7,732 | 02 |
| 2,000 | - | 158 | - | - | - |
| 2,200 | - | 1,941 | 69 | - | - |
| 2,400 | 2,583 | 1,097 | 31 | - | 0 |
| **Total** | **386,050** | **382,749** | **207,760** | **178,081** | **89** |

# WT13 NUMBER AND LENGTH OF SERVICE CONNECTIONS IN 2022, IN METERS

Service size from 15 mm up to 54 mm (Copper pipe) – Domestic & Commercial (meters)

| Type of Service | 15mm Length | 15mm Nos | 22mm Length | 22 mm Nos | 28 mm Length | 28 mm Nos | 42 mm Length | 42 mm Nos | 54 mm Length | 54 mm Nos | Total Length | Total Nos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| New Service | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reconnection | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Disconnection | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Maintenance or Replacement | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Transpose | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Size Increase | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| New Water Meter Installation | 0 | 0 | 0 | 19819 | 0 | 791 | 0 | 749 | 0 | 186 | 0 | 0 |
| Water Meter Replacement | 0 | 0 | 0 | 2158 | 0 | 112 | 0 | 109 | 0 | 205 | 0 | 0 |

# WT14 NUMBER AND LENGTH OF SERVICE CONNECTIONS IN 2022, IN METERS

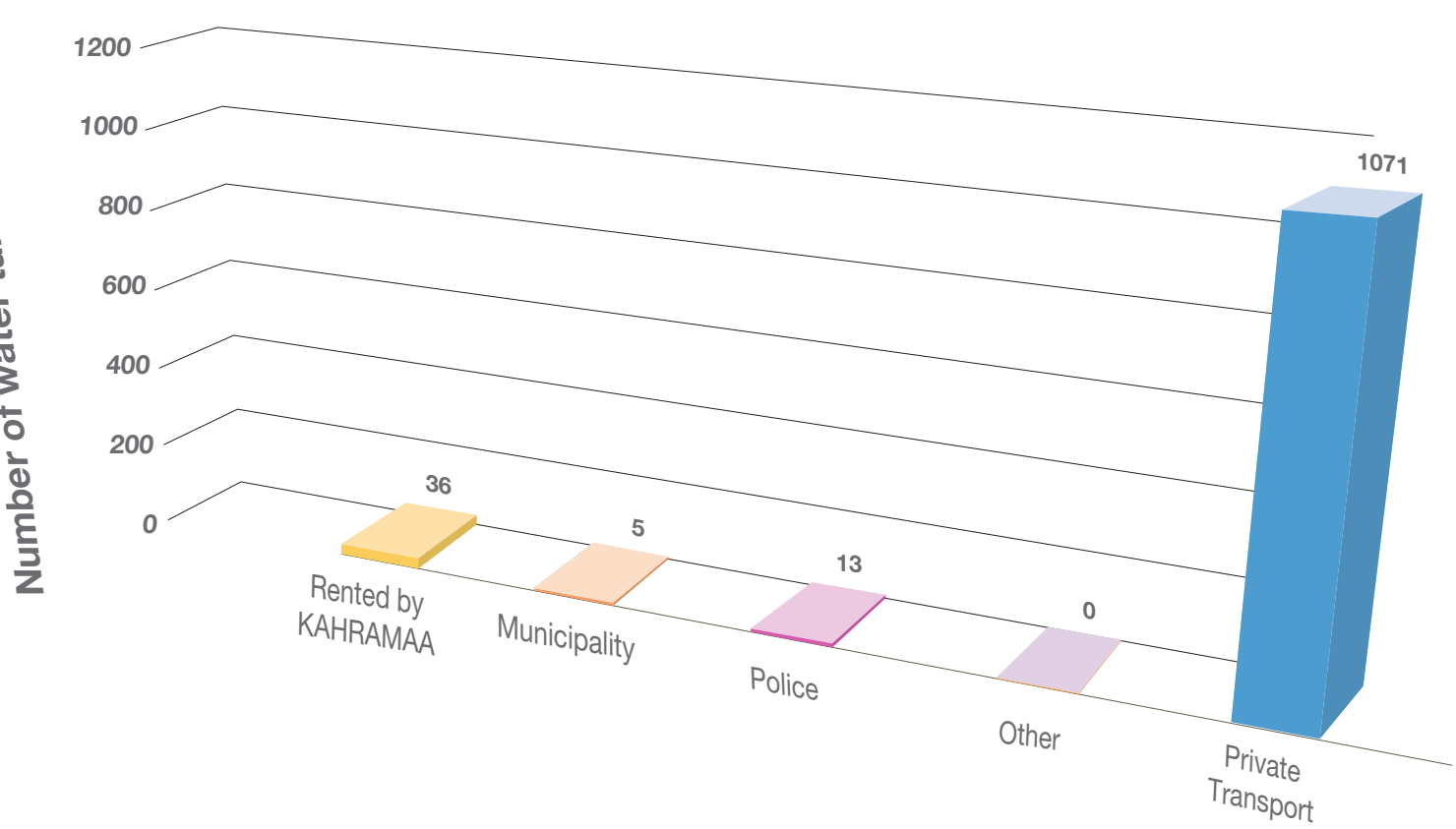
Service size from 80mm (3”) up to 400mm (16”) – Bulk

| Type of Service | 80 mm Length | 80 mm Nos | 100 mm Length | 100 mm Nos | 150 mm Length | 150 mm Nos | 200 mm Length | 200 mm Nos | 250 mm Length | 250 mm Nos | 300 mm Length | 300 mm Nos | 400 mm Length | 400 mm Nos | Total Length | Total Nos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| New Service | 10.5 | 1 | 96 | 2 | 35.7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 142.2 | 4 |
| Reconnection | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Disconnection | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Maintenance or Replacement | 0 | 0 | 8 | 1 | 177.1 | 3 | 2008.8 | 8 | 2 | 1 | 414.8 | 12 | 4.8 | 4 | 2615.5 | 29 |
| Transpose | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Size Increase | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| New Water Meter Installation | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Water Meter Replacement | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

# WT15 TANKER WATER SUPPLY IN 2022

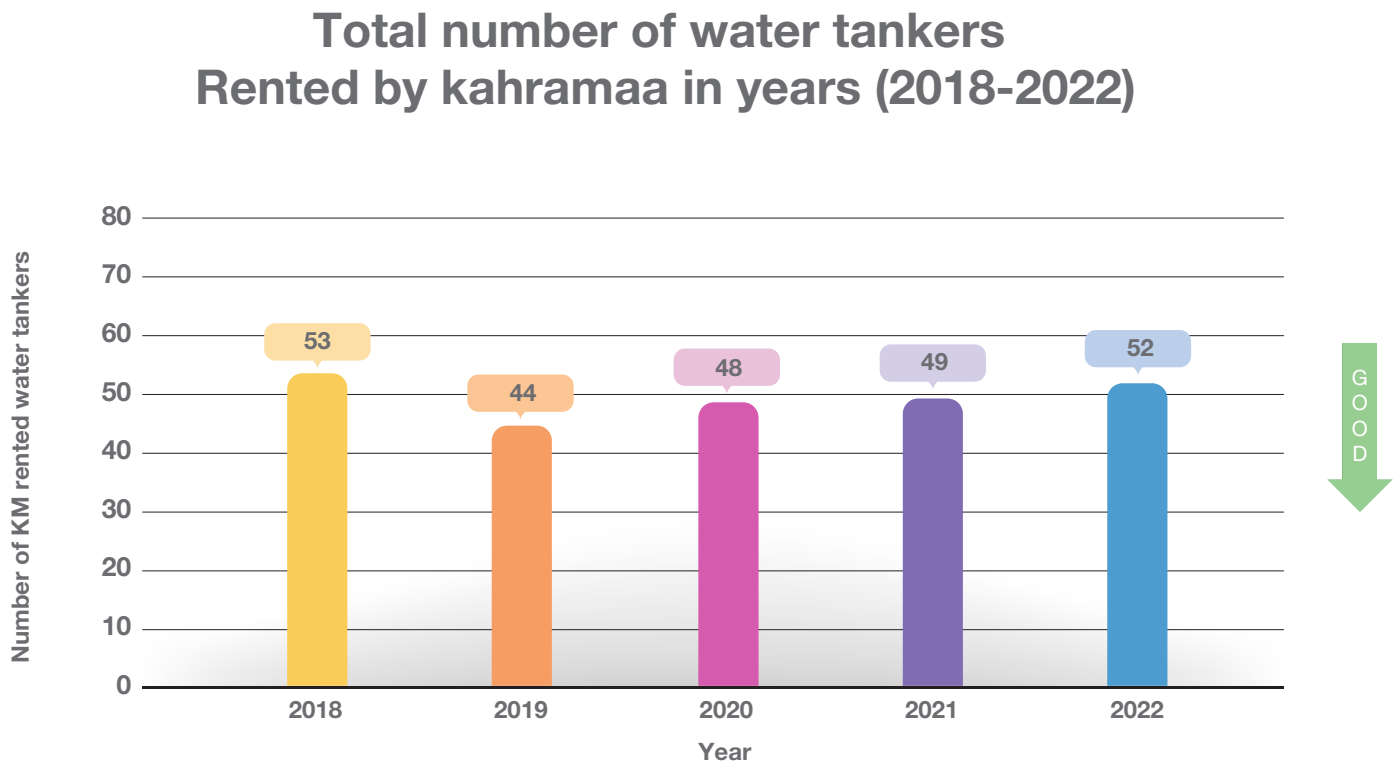
| Station | Rented by KAHRAMAA | Municipality | Education | Defence | Police | Other | Rural Tankers | Private Transport |
|---|---|---|---|---|---|---|---|---|
| AL SAILIYA | 12 | 01 | 00 | 00 | 06 | 00 | 00 | 464 |
| UMM SALAL | 10 | 01 | 00 | 01 | 03 | 00 | 00 | 280 |
| AL KHOR | 02 | 00 | 00 | 00 | 01 | 00 | 00 | 75 |
| AL SHAHANIYAH | 06 | 01 | 00 | 00 | 00 | 00 | 00 | 85 |
| AL JAMELIYAH | 06 | 00 | 00 | 00 | 01 | 00 | 00 | 29 |
| AL SHAMAL | 00 | 01 | 00 | 00 | 01 | 00 | 00 | 34 |
| MESAIEED | 00 | 00 | 00 | 00 | 01 | 00 | 00 | 72 |
| AL MAZROUA | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| AL GHUWARIYAH | 00 | 01 | 00 | 00 | 00 | 00 | 00 | 18 |
| GHARAFFA | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| SEA LINE | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 14 |
| **Total** | **36** | **5** | **0** | **1** | **13** | **0** | **0** | **1071** |

# WATER TANKERS SERVED IN 2022 BY TYPE

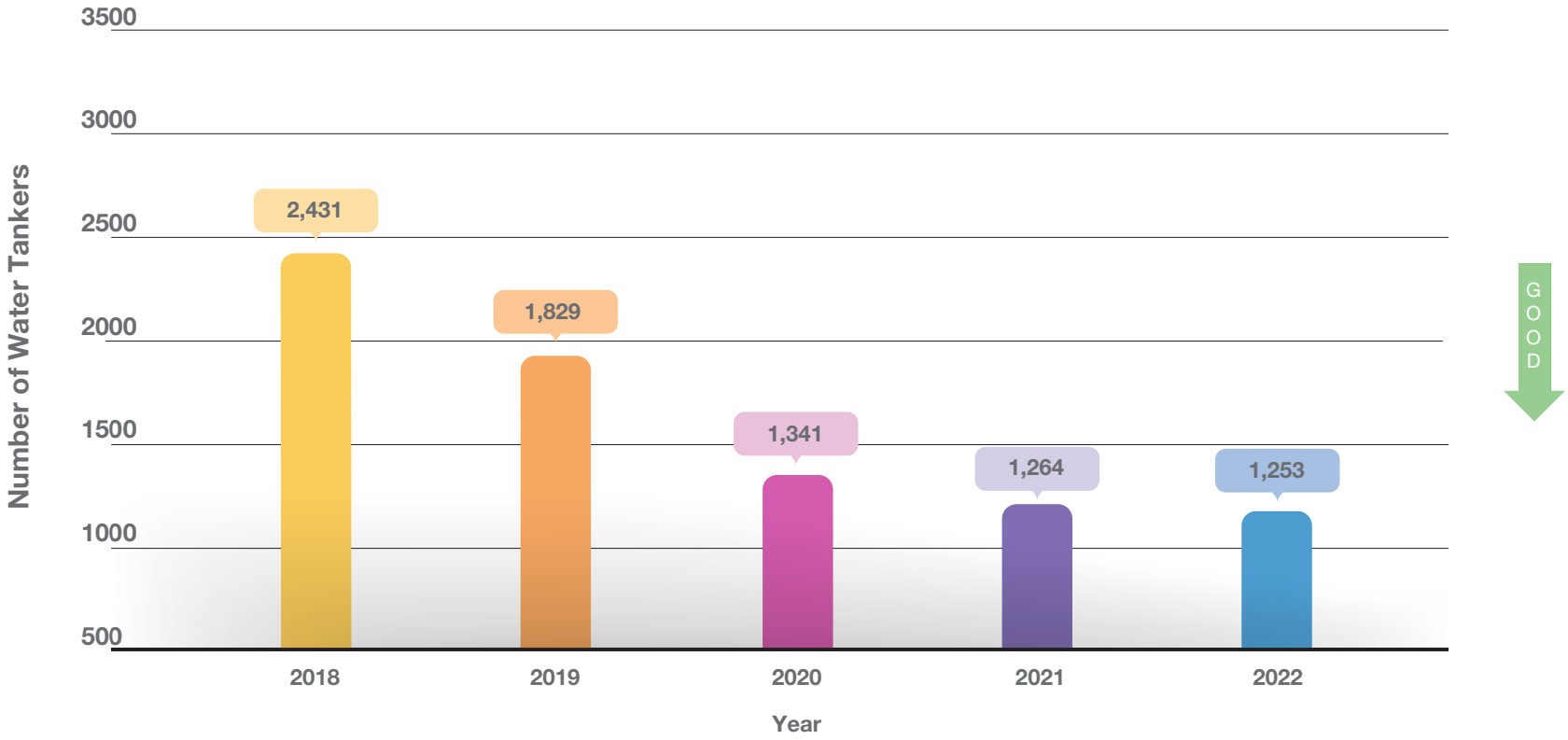


# WT16 WATER TANKER SERVICES LAST 5 YEARS

| Water Production | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|
| No of Water Tankers | 2,431 | 1,829 | 1,341 | 1,264 | 1,253 |
| No of KM Rented Water Tankers | 53 | 44 | 48 | 49 | 52 |
| Total Reduction | 93 | 602 | 488 | 77 | 48 |
| Total Reduction (%) | 3.68% | 24.76% | 26.68% | 5.74% | 03.80% |
| KM - Rented Reduction | -5 | 9 | -4 | -1 | 03 |
| KM - Rented Reduction (%) | -10.42% | 16.98% | -9.09% | -2.08% | 06.12% |

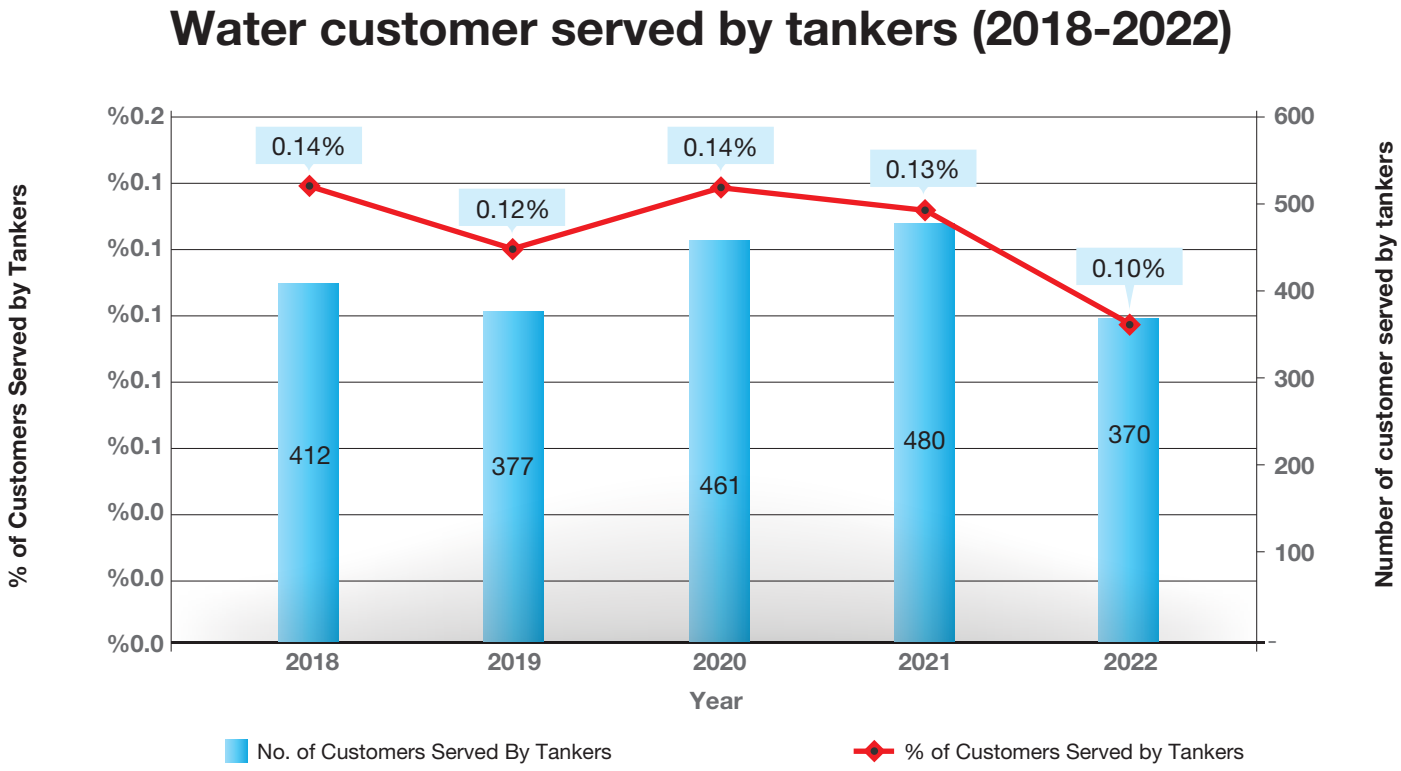


# Total number of water tankers
# In years (2018-2022)



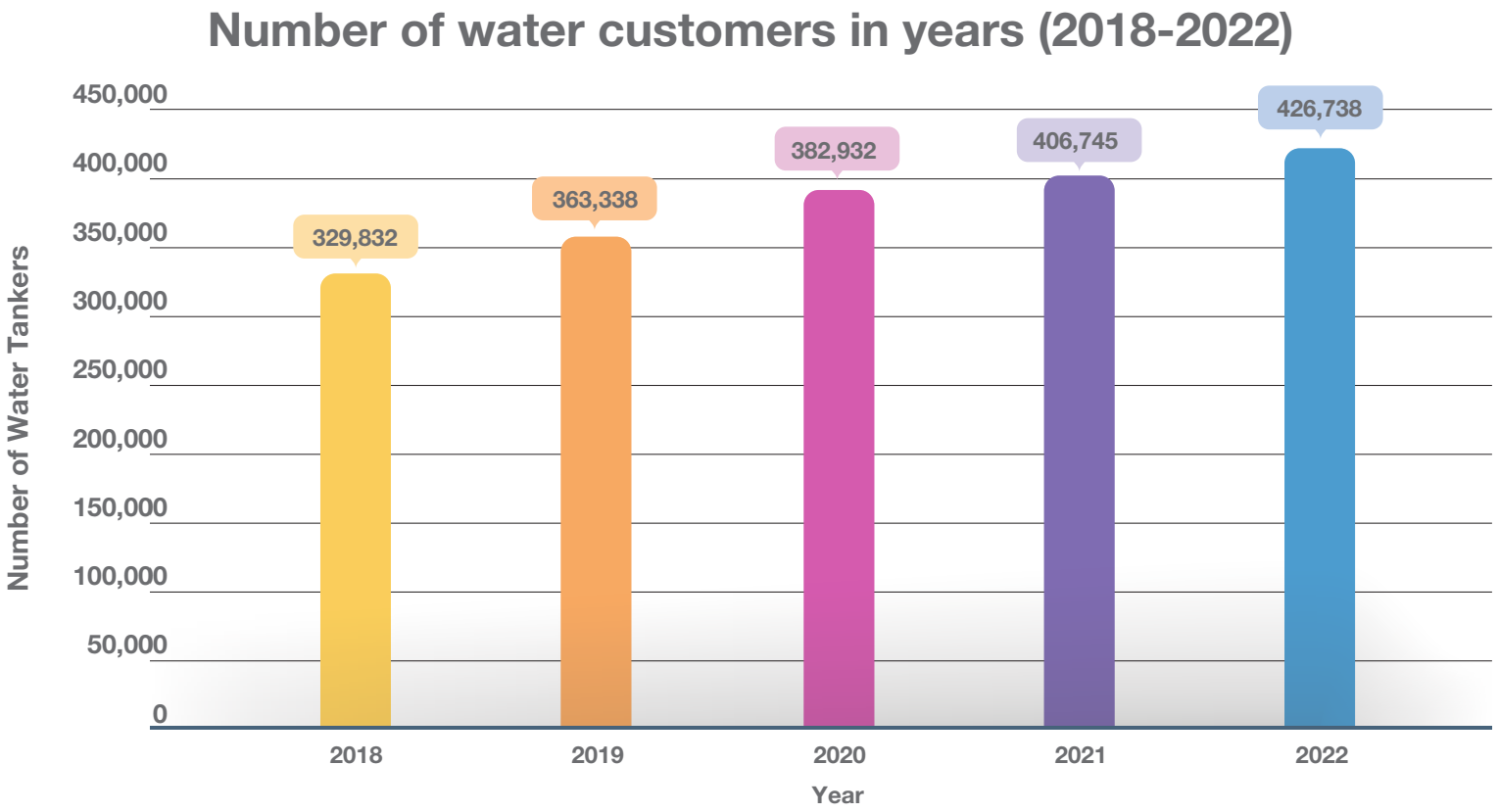
# WT17 PERCENTAGE OF CUSTOMERS SERVED BY TANKERS

| Water Production | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|
| Total No. of Water Customers | 329,832 | 363,338 | 382,932 | 406,745 | 426,738 |
| No Of Customers Served By Tankers | 461 | 480 | 370 | 423 | 423 |
| Percentage of Customers Served by Tankers (%) | 0.14% | 0.13% | 0.10% | 0.10% | 0.10% |
| Reduction | (84) | (19) | 110 | (53) | 0 |
| Percentage Reduction (%) | -0.02% | 0.01% | 0.04% | -0.01% | 0.00% |



# WT18 NUMBER OF WATER CUSTOMERS

| Year | No Of Customers | Annual Growth |
|---|---|---|
| 2018 | 329,832 | 4.0% |
| 2019 | 363,338 | 10.2% |
| 2020 | 382,932 | 5.4% |
| 2021 | 406,745 | 6.2% |
| 2022 | 426,738 | 4.9 % |

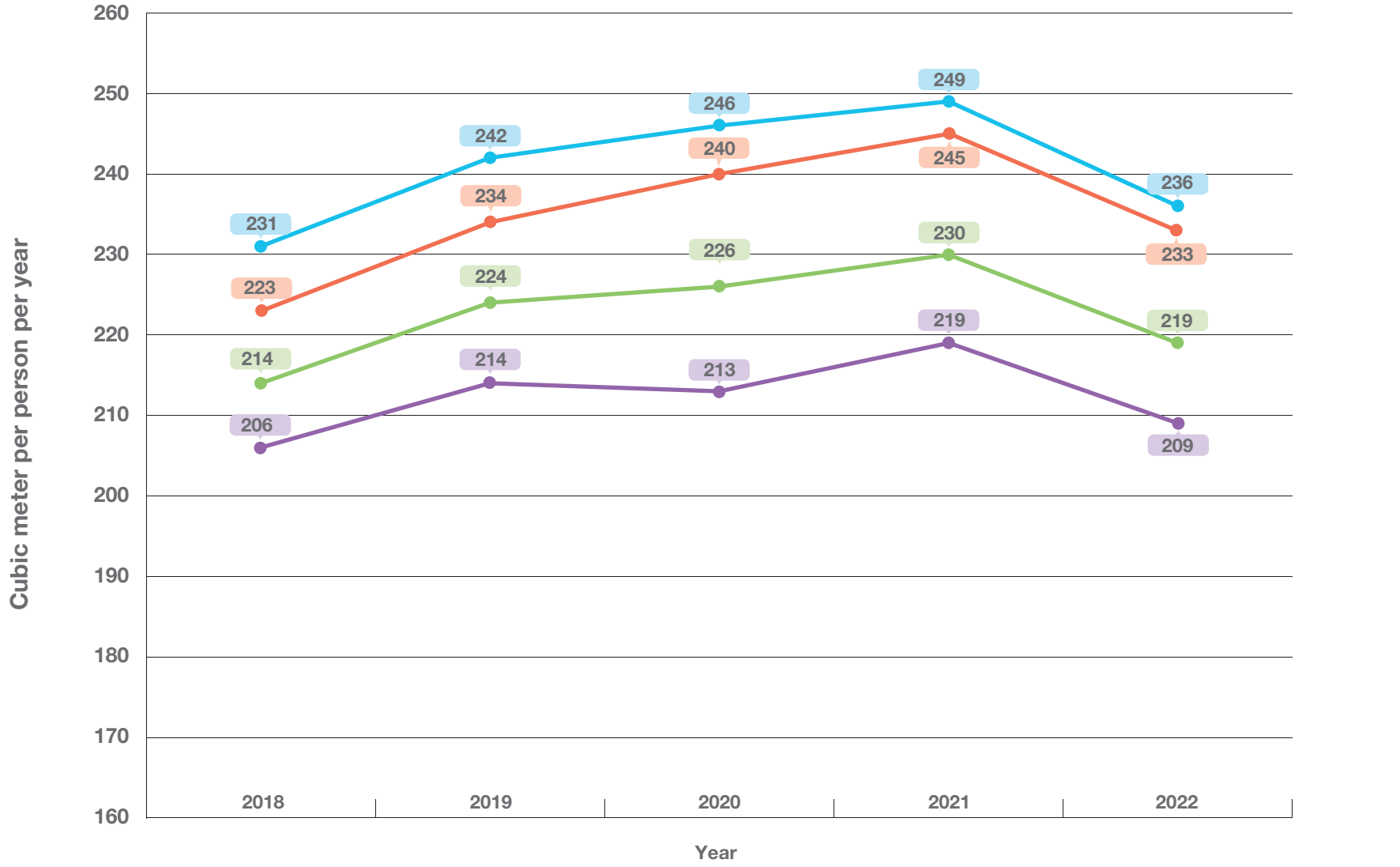


# WT19 AVERAGE WATER PER CAPITA CONSUMPTION, LAST FIVE YEARS

| Year | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|
| Population | 2,757,437 | 2,773,885 | 2,807,805 | 2,693,301 | 2,842,958 |
| Population Annual Increase(%) | 2.10% | 0.60% | 1.22% | -4.08% | 5.56% |
| Total Water Production Mm3 | 637 | 671 | 691 | 671 | 672 |
| System Input Volume (Forwarding) Mm3 | 616 | 648 | 673 | 660 | 662 |
| Water Net Distribution Mm3 = System Input Volume Mm3 (Forwarding) - Real Losses | 591 | 622 | 634 | 619 | 624 |
| Total Potable Water Distribution (Mm3)= ((Net Distribution - Distilled water) – Total Distribution Real Losses) | 568 | 593 | 597 | 590 | 596 |
| **Average Water Per Capita Consumption: (Cubic meter per person per year)** | | | | | |
| A) Based on Total Water Production | 231 | 242 | 246 | 249 | 236 |
| B) Based on Water System Input Volume (Forwarding) | 223 | 234 | 240 | 245 | 233 |
| C) Based on Water Net Distribution | 214 | 224 | 226 | 230 | 219 |
| D) Based on Total Potable Water Distribution = ((Net Distribution - Distilled water) – Total Distribution Real Losses) | 206 | 214 | 213 | 219 | 209 |

Note: *Starting from year 2017, Per Capita Consumption calculation is based on maximum population for the year.*

# WATER PER CAPITA CONSUMPTION
# (Cubic meters Per Person per Year)



# WT20 WATER STORAGE IN IWPP RESERVOIRS IN 2022

| Station | Total Installed Capacity, MIG | Non-Operating Capacity, MIG | Operating Capacity, MIG | Total Installed Capacity, M3 | Non-Operating Capacity, M3 | Operating Capacity, M3 |
|---|---|---|---|---|---|---|
| RAF A1 | 45 | 00 | 45 | 204,545 | 00 | 204,545 |
| RAF A2 | 36 | 00 | 36 | 163,636 | 00 | 163,636 |
| RAF A3 | 36 | 00 | 36 | 163,636 | 00 | 163,636 |
| RAF B | 19.3 | 00 | 19.3 | 87,727 | 00 | 87,727 |
| RAF B2 | 29 | 00 | 29 | 131,818 | 00 | 131,818 |
| RL A | 40 | 00 | 40 | 181,818 | 00 | 181,818 |
| RL B | 60 | 00 | 60 | 272,727 | 00 | 272,727 |
| RL C | 63 | 00 | 63 | 286,364 | 00 | 286,364 |
| UHP | 136.5 | 00 | 136.5 | 620,455 | 00 | 620,455 |
| **Total** | **464.8** | **00** | **464.8** | **2,112,727** | **00** | **2,112,727** |

# WT21 WATER STORAGE IN KM RESERVOIRS IN 2022

| Station | Total Installed Capacity, MIG | Non-Operating Capacity, MIG | Operating Capacity, MIG | Total Installed Capacity, M3 | Non-Operating Capacity, M3 | Operating Capacity, M3 | Remarks |
|---|---|---|---|---|---|---|---|
| Airport | 21 | - | 21 | 95,455 | - | 95,455 | NA |
| Old Salwa | - | - | - | - | - | - | All reservoirs demolished for upgrading |
| New Salwa | 30 | - | 30 | 136,364 | - | 136,364 | NA |
| Salwa Industrial | 51 | - | 51 | 231,818 | - | 231,818 | NA |
| Doha South | 84 | - | 84 | 381,818 | - | 381,818 | NA |
| Mesaimeer | 108 | - | 108 | 490,909 | - | 490,909 | NA |
| Wakrah | 10 | - | 10 | 45,455 | - | 45,455 | NA |
| Mes Town | 24 | - | 24 | 109,091 | - | 109,091 | NA |
| Mes Industrial | 28 | - | 28 | 127,273 | - | 127,273 | NA |
| Garrafa | 50 | - | 50 | 227,273 | - | 227,273 | NA |
| Westbay | 56 | - | 56 | 254,545 | - | 254,545 | NA |
| Duhail | 142 | - | 142 | 645,455 | - | 645,455 | NA |
| Umm Qarn | 71 | - | 71 | 322,727 | - | 322,727 | NA |
| Bani Hajr | 36 | - | 36 | 163,636 | - | 163,636 | NA |
| Muaither | 105 | - | 105 | 477,273 | - | 477,273 | NA |
| Al Khor 2 | 6 | - | 6 | 27,273 | - | 27,273 | NA |
| Al Khor 3 | 18 | - | 18 | 81,818 | - | 81,818 | NA |

# WT21 WATER STORAGE IN KM RESERVOIRS IN 2022

| Station | Total Installed Capacity, MIG | Non-Operating Capacity, MIG | Operating Capacity, MIG | Total Installed Capacity, M3 | Non-Operating Capacity, M3 | Operating Capacity, M3 | Remarks |
|---|---|---|---|---|---|---|---|
| Al Khor 1 | 4 | - | 4 | 18,182 | - | 18,182 | NA |
| Umm Salal 1 | 6 | - | 6 | 27,273 | - | 27,273 | NA |
| Shahaniyah 2 | 12 | - | 12 | 54,545 | - | 54,545 | NA |
| Shahaniyah 3 | 12 | - | 12 | 54,545 | - | 54,545 | NA |
| Guwairiyah | 1 | - | 1 | 2,273 | - | 2,273 | NA |
| M. Shamal | 10 | - | 10 | 45,455 | - | 45,455 | NA |
| Pearl of Qatar | 4 | - | 4 | 18,000 | - | 18,000 | NA |
| Small And Medium | 8 | - | 8 | 36,209 | - | 36,209 | NA |
| Umm Salal 2 | 18 | - | 18 | 81,818 | - | 81,818 | NA |
| Wukair | 36 | - | 36 | 163,636 | - | 163,636 | NA |
| Labor City | 7 | | 7 | 30,000 | - | 30,000 | |
| Lusail RPS4 | 7 | | 7 | 30,000 | - | 30,000 | |
| Lusail RPS2 | 8 | | 8 | 38,000 | - | 38,000 | |
| Jeryan | 1 | | 1 | 4,545 | - | 4,545 | |
| Umm Birka PRPS | 194 | | 194 | 881,818 | - | 881,818 | Mega RPS |
| Umm Salal PRPS | 386 | | 386 | 1,754,545 | - | 1,754,545 | Mega RPS |
| Rawdat Rashed PRPS | 386 | | 386 | 1,754,545 | - | 1,754,545 | Mega RPS |
| Abu Nakhla PRPS | 194 | | 194 | 881,818 | - | 881,818 | Mega RPS |
| Thumama PRPS | 261 | | 261 | 1,186,364 | - | 1,186,364 | Mega RPS |
| **Total** | **2,394** | **-** | **2,394** | **10,881,755** | **-** | **10,881,755** | |

# WT22 WATER STORAGE IN GROUND TANKS IN 2022

| Location | Ground Tank Non-Operating (MIG) | Ground Tank Operating (MIG) | Ground Tank Non-Operating (M3) | Ground Tank Operating (M3) | Remarks |
|---|---|---|---|---|---|
| North Camp | 00 | 00.68 | 00 | 3,073 | NA |
| Abu Samra | 00.5 | 00.5 | 2,273 | 2,273 | Old GST not operational due to major structural defects |
| Al Ghuwairiyah | 00 | 00.5 | 00 | 2,273 | NA |
| Shahaniyah 1 | 01.5 | 00 | 6,818 | 00 | GST not in service since 27/11/2018 as ET not operational due to major roof defects. |
| Mazruah | 01.5 | 00 | 6,818 | 00 | Station is not in service (Decommissioned) |
| New Jemiliyah | 00.5 | 00 | 2,273 | 00 | GST not in service since 19/05/2014 as ET not operational due to leakage. |
| Dukhan | 00.5 | 00 | 2,273 | 00 | Station is not in service (Decommissioned) |
| **Total** | **04.5** | **01.68** | **20,455** | **7,618** | |

# WT23 WATER STORAGE IN ELEVATED TANKS IN 2022

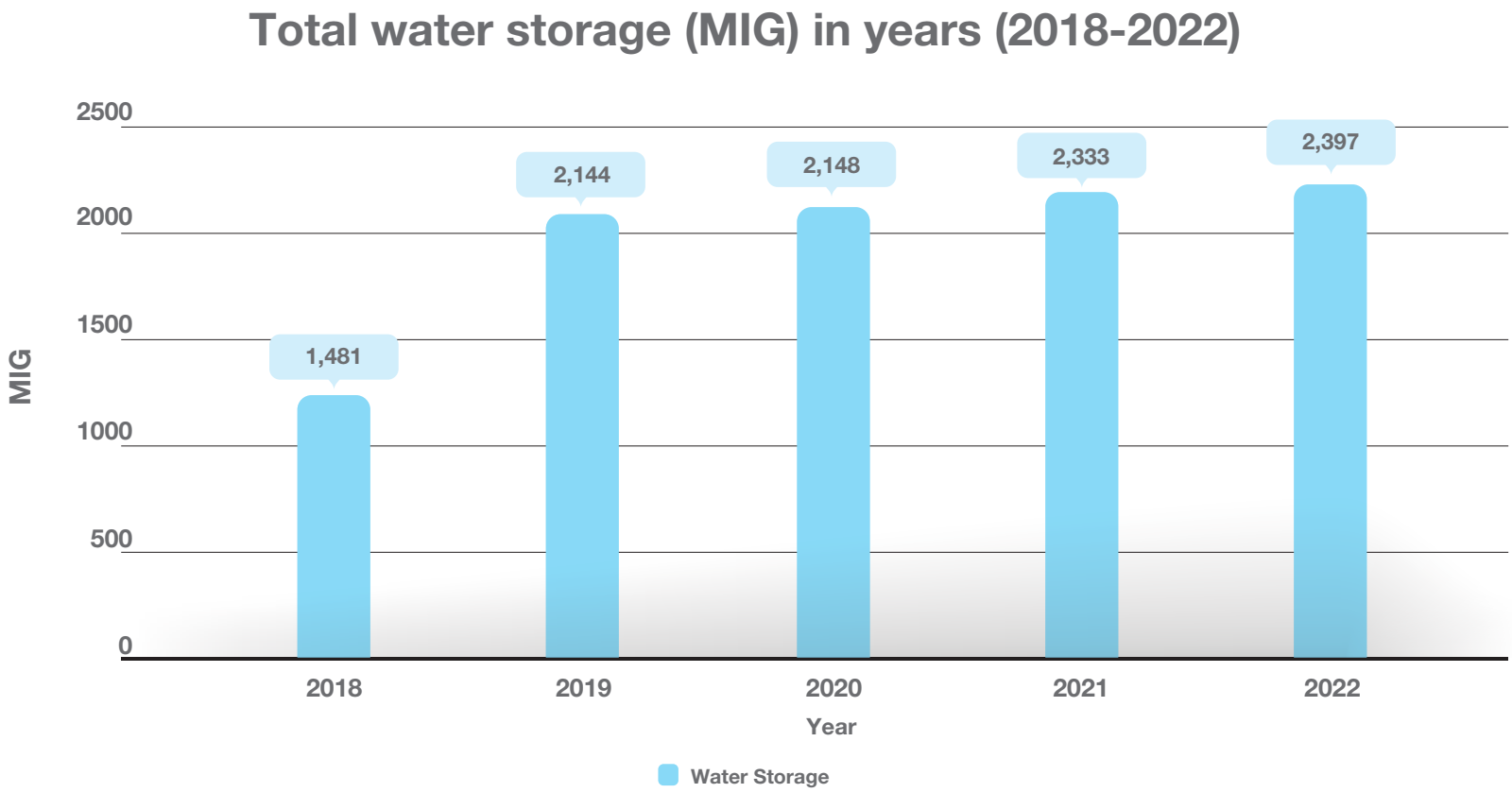
| Location | Elevated Tank Capacity (Imperial Gallons) | Elevated Tank Operating Capacity (Imperial Gallons) | Capacity (M3) | Operating Capacity (M3) | Remarks |
|---|---|---|---|---|---|
| Madinat Shamal | 55,000 | 0 | 250 | 0 | Demolished |
| Al Ghuwairiyah | 55,000 | 0 | 250 | 0 | Bypassed |
| Al Khor 1 | 55,000 | 55,000 | 250 | 250 | In Service |
| Mazruah | 200,000 | 0 | 909 | 0 | Bypassed |
| Shahaniyah 1 | 34,500 | 0 | 157 | 0 | Bypassed |
| Abu Samra | 55,000 | 55,000 | 250 | 250 | Old ET decommissioned and subject for demolition |
| New Jemiliyah | 80,000 | 0 | 364 | 0 | Bypassed |
| North Camp | 88,000 | 88,000 | 400 | 400 | In Service |
| **Total** | **622,500** | **198,000** | **2,830** | **900** | |

# WT24 WATER STORAGE IN TOWERS IN 2022

| Location | Capacity (Imperial Gallons) | Capacity (M3) | Remarks |
|---|---|---|---|
| WT-1 (Airport) | 495,000 | 2,250 | Not in Service (Bypassed) |
| WT-3 (Luqta) | 275,000 | 1,250 | Not in Service (Bypassed) |
| WT-12 (Naeeja) | 250,000 | 1,136 | Not in Service (Bypassed) |
| WT-14 (Museum) | 495,000 | 2,250 | Not in Service (Bypassed) |
| WT-15 (Asiri) | 495,000 | 2,250 | Demolished on Nov. 2017 |
| WT-17 (Ghanim Jadeed) | 275,000 | 1,250 | Not in Service (Bypassed) |
| WT-18 (Rumaillah) | 495,000 | 2,250 | Not in Service (Bypassed) |
| WT-19 (Hitmi) | 275,000 | 1,250 | Not in Service (Bypassed) |
| WT-20 (Garrafa) | 275,000 | 1,250 | Not in Service (Bypassed) |
| WT-21 (Khalifa Town) | 275,000 | 1,250 | Not in Service (Bypassed) |
| WT-22 (Messaieed Town) | 495,000 | 2,250 | In Service |
| WT-23 (Muraykh) | 495,000 | 2,250 | Not in Service (Bypassed) |
| WT-24 (Wakrah) | 495,000 | 2,250 | Not In Service (By-passed) |
| WT-25 (Salwa Industrial) | 495,000 | 2,250 | In Service |
| WT-26 (Bani Hajr) | 495,000 | 2,250 | Not in Service (Bypassed) |
| **Total** | **6,080,000** | **27,636** | |

# WT25 TOTAL WATER STORAGE 2018-2022

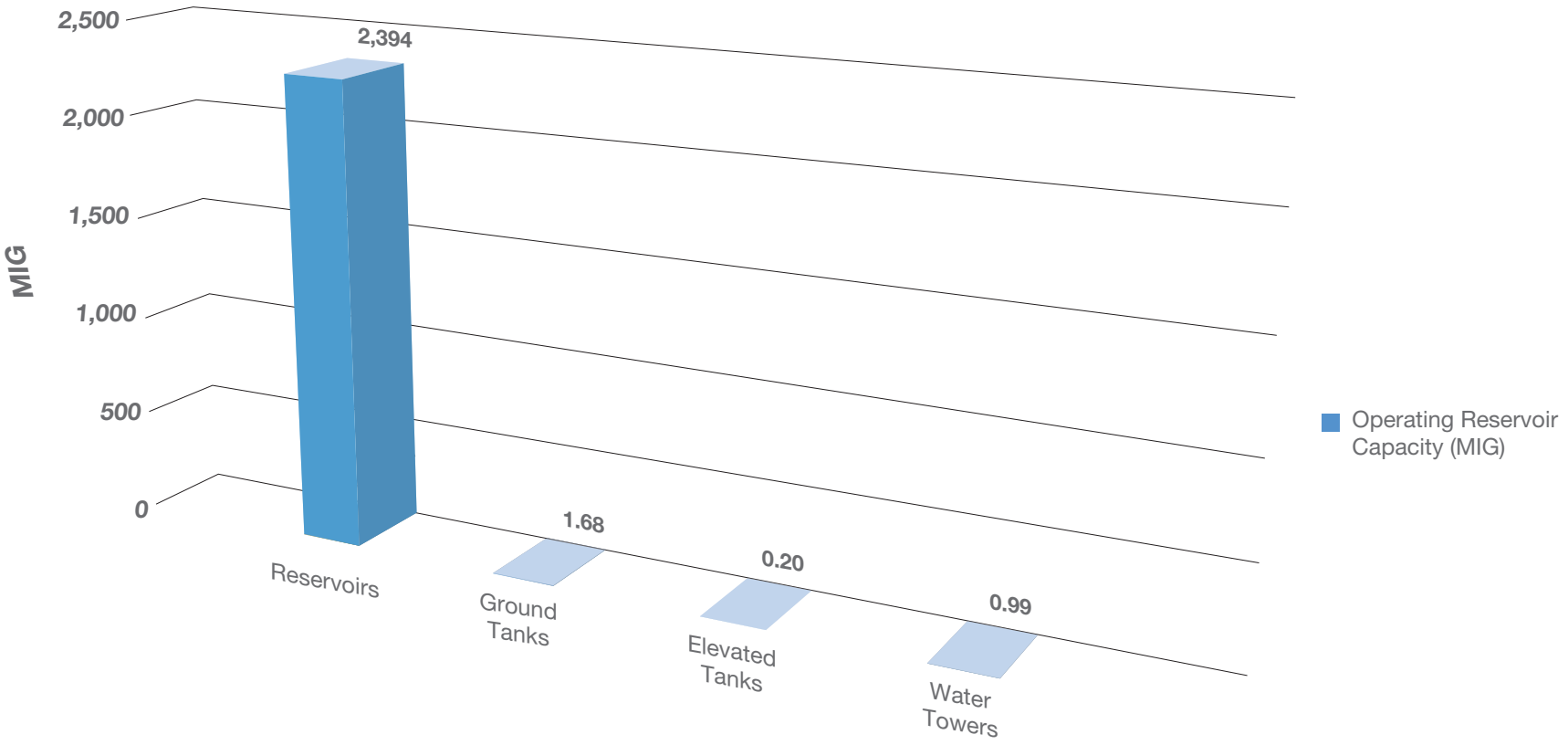
| Water Storage | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|
| Imperial Gallons (IG) | 1,481,170,000 | 2,143,670,000 | 2,147,823,000 | 2,333,423,000 | 2,396,868,000 |
| Meter Cube(M3) | 6,732,591 | 9,743,955 | 9,762,832 | 10,606,468 | 10,894,855 |
| Million Meter Cube (MM3) | 6.7 | 9.74 | 9.76 | 10.61 | 10.89 |
| Million Imperial Gallons (MIG) | 1,481 | 2,144 | 2,148 | 2,333 | 2,397 |



# WT26 TOTAL WATER STORAGE BY TYPE IN 2022

| Type | Operating Reservoir Capacity (MIG) | % | Remarks |
|---|---|---|---|
| Reservoirs | 2,394 | 99.88 | |
| Ground Tanks | 1.68 | 0.07 | |
| Elevated Tanks | 0.20 | 0.01 | |
| Water Towers | 0.99 | 0.04 | Water Towers in Service are considered |
| **Grand Total** | **2,398** | **100** | |

## Operating reservoir capacity (MIG) by type in year 2022



# WT27 TOTAL ABSTRACTION FROM GROUND WATER 2018-2022

| | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|
| Ground Water Abstraction (Mm3) | 250 | 250 | 250 | 250 | 250 * |

* Note: 250 million m3 based on estimation of previous studies.

# WT28 TOTAL WATER STORAGE IN YEAR 2022

| Abstraction from Ground Water by Types (Mm3) | Agricultural Wells | Municipal Wells | Domestic Wells | Industrial Wells | Other Wells | Total |
|---|---|---|---|---|---|---|
| | 230 | 20 * | | | N/A | 250.0 |

* Note: All values are estimated in million cubic meter based on estimation of previous studies.
** Municipal, Domestic and Industrial Wells has been combined due to no available specific data for each type.
*** In the coming 3 years, flowmeter will be installed in each wells.

# GLOSSARY OF TERMS & ABBREVIATIONS

# GLOSSARY OF TERMS & ABBREVIATIONS

| Abbreviation | Description |
|---|---|
| AMR | Automatic meter reading, or AMR, is the technology of automatically collecting data from water meter or energy metering devices (water, gas, and electric) and transferring that data to a central database for billing and/or analysing. This means that billing can be based on actual consumption rather than on an estimate based on previous consumption, giving customers better control of their use of electric energy, gas usage, or water consumption.<br><br>AMR technologies include handheld, mobile and network technologies based on telephony platforms (wired and wireless), radio frequency (RF), or power line transmission. |
| Arab D | Several major projects have been completed including the development of Dukhan petroleum fields leading to raising oil production to 335,000 b/d, Arab D project to develop the production of gas and condensates in two stages inaugurated by H.H. the Emir of Qatar in 1998. The Arab D project will increase production of natural gas to about 1,500 tons p/d to supply LNG Plant 4 in Mesaieed, which is in the final phase, as well as a project to inject gas into dead wells (in its final stage) and Al-Shu'la project for all oil production stations in Dukhan for the purpose of environmental protection. |
| Auxiliary power consumption | Refers to the energy consumed internally by various integrated components of the main plant and supporting equipment necessary for the complete cycle of generating electrical energy and desalination of water, such as air compressors, pumps and fans. |
| Black Start | A black start is the process of restoring a power station to operation without relying on external energy sources. Normally, the electric power used within the plant is provided from the station's own generators. Often a transmission line will be installed to provide this station service power if all the main generators are shut down. However, during a wide-area outage, this off-site power supply will not be available. In the absence of grid power, a so-called black start needs to be performed to bootstrap the power grid into operation. |
| Combined cycle | Combined cycle describes when a power producing engine or plant employs more than one thermodynamic cycle. Heat engines are only able to use a portion of the energy their fuel generates (usually less than 50%). The remaining heat from combustion is generally wasted. Combining two or more "cycles" such as the Brayton cycle and Rankine cycle results in improved overall efficiency. |
| PQ | Planning & Quality: Departmental level business unit of KAHRAMAA that is responsible for the overall planning, forecasting, coordination of energy & water demand, developing the mission, vision, corporate objectives and vision, tariff development, negotiation of power and water purchase agreements and many other high-level management and business functions. |
| CPR | Corporate Performance Report: A report presented to the KAHRAMAA Board of Directors on a quarterly basis, which depicts the progress of KAHRAMAA's business and activities. In this report, the progress or achievement level of many activities are measured in terms of Key Performance Indicators (KPI's). |
| CSD | Customer Services Department: A department level business unit in KAHRAMAA that processes requests for building permits, service connections and customer billing. |
| Distribution substation | A distribution substation's purpose is to transfer power from the transmission system to the distribution system of some area. It is uneconomical to directly connect electricity consumers to the main transmission network (unless they use large amounts of energy); so the distribution station reduces voltage to a value suitable for connection to local loads. |

| Abbreviation | Description |
|---|---|
| Domestic | Refers to consumption of electricity or water that is not industrial in nature. In KARAMAA the National Control Centre tracks Qatar's entire electrical loads at two levels: industrial and domestic. Domestic loads cover residential, commercial and government demand. |
| DSM | Demand Side Management |
| ENA | Electricity Network Affairs: Directorate level business unit in KAHRAMAA that takes care of electricity network expansion and maintenance. |
| ESCWA | Economic and Social Commission for Western Asia |
| GT, Gas turbine | A type of engine using ignited gas running through a huge and very carefully designed multi-stage turbine to spin an output shaft that drives the plant's generator. In a gas turbine, a pressurized gas spins the turbine. In all modern gas turbine engines, the engine produces its own pressurized gas, and it does this by burning something like propane, natural gas, and kerosene or jet fuel. The heat that comes from burning the fuel expands air, and the high-speed rush of this hot air spins the turbine. |
| GDP | Gross Domestic Product: The total output of a country's economy. |
| Grid | A power transmission system is sometimes referred to colloquially as a "grid"; however, for reasons of economy, the network is not a mathematical grid. Redundant paths and lines are provided so that power can be routed from any power plant to any load centre, through a variety of routes, based on the economics of the transmission path and the cost of power. Much analysis is done by transmission companies to determine the maximum reliable capacity of each line, which, due to system stability considerations, may be less than the physical or thermal limit of the line. Deregulation of electricity companies in many countries has led to renewed interest in reliable economic design of transmission networks. |
| GW | Gigawatt = billions of watts (capacity) |
| GWh | Gigawatt Hour = billions of watts in 1 hour (electrical energy) |
| IWPP | Independent Water and Power Producers |
| KAH S/S | KAHRAMAA substation |
| KAHRAMAA | KAHRAMAA |
| KM | KAHRAMAA |
| kV | Kilovolt = 1,000 volts (capacity) |
| kW | Kilowatt = 1,000 watts (capacity) |
| kWh | Kilowatt-Hour = 1,000 watts in 1 hour (electrical energy) |

| Abbreviation | Description |
|---|---|
| Loading desk | Refers to a desk at NCC (National Control Centre) equipped with the required and hardware, software and connectivity used in tracking loads on the electricity grid and managing the loads in real-time. |
| m3 | Cubic Meters, unit of measurement for volume of water |
| MIC | Mesaieed Industrial City, south of Doha |
| MIG | Million Imperial Gallons, unit of measurement for volume of water |
| MIGD | Million Imperial Gallons per Day, unit of measurement for volume of water. Normally used to indicate the capacity of a water desalination plant. |
| Mm | Millimetre, normally used in measuring water pipe diameter |
| MMSCF | Million Standard Cubic Feet, a measure of gas volume |
| MOF | Ministry of Finance, Qatar government agency |
| MPC | Mesaieed Power Company, owns & operates power & desalination plants south of Doha |
| MSF | Multi-Stage Flash (MSF) is the most commonly used process for seawater desalination. A MSF facility is typically located so that it uses steam from a nearby electricity generation facility. Seawater is heated in a “brine heater” and proceeds to another receptacle, called a stage, where it immediately boils (flash) due in part to the ambient pressure. The steam yielded is the condensed on heat exchanger tubes that in turn heat up the incoming water, thereby decreasing the amount of thermal energy needed to heat the feed water. |
| MW | Megawatt = 1 million watts (capacity) |
| MWh | Megawatt Hour, 1 million watts in 1 hour (electrical energy) |
| n-1 policy or criteria | The supply system must be maintained stable during and after the disturbance in the system resulting in the loss of one generating unit or one circuit of transmission lines, as well as no loss of load is allowed. |
| NGL | Natural Gas Liquid(s) |
| NODCO | Qatar's National Oil Distribution Company |
| NWRMDS | National Water Resources Management and Development Strategy, a study sponsored by PWRC |
| PASS-OUT | Pass-Out: Refers to the steam passed out from combined-cycle gas turbines (CCGT). The pass-out steam from the steam turbine can be used to meet on-site heat requirements increasing overall efficiencies. This lowers electricity production, but improves overall economics. |

| Abbreviation | Description |
|---|---|
| Power Factor | The cos φ, where φ is the angle between the current and voltage. Rated Power Factor = The minimum power factor at which a generator can supply the rated active power. The ratio of Active over Apparent Power (a typical value is around 0.9). The power factor can vary from customer to customer, as it depends on the electrical characteristics of the customer's installed equipment. |
| PPA | Power Purchase Agreement |
| PWPA | Power & Water Purchase Agreement |
| P/S or PS | PowerStation: A power station (also referred to as generating station or power plant) is a facility for the generation of electric power. 'Power plant' is also used to refer to the engine in ships, aircraft and other large vehicles. Some prefer to use the term energy centre because it more accurately describes what the plants do, which is the conversion of other forms of energy, like chemical energy, gravitational potential energy or heat energy into electrical energy. Not all thermal energy can be transformed to mechanical power, according to the second law of thermodynamics. Therefore, there is always heat lost to the environment. If this loss is employed as useful heat, for industrial processes or district heating, the power plant is referred to as a cogeneration power plant or CHP (combined heat-and-power) plant. In countries where district heating is common, there are dedicated heat plants called heat-only boiler stations. An important class of power stations in the Middle East uses by-product heat for desalination of water. |
| PWRC | Permanent Water Resources Committee, an organization that plans and oversees security & sustainability of water supply in Qatar |
| QAFAC | Qatar Fuel Additives Company Limited |
| QAFCO | Qatar Fertilizer Company |
| QAPCO | Qatar Petrochemicals Company |
| QASCO | Qatar Steel Company |
| Q-Chem | Qatar Chemical Company, Ltd. |
| QNCC | Qatar National Cement Company |
| QVC | Qatar Vinyl Company, Ltd. |
| QEWC | Qatar Electricity and Water Company, one of the independent power producers (IPP's) in Qatar, supplying KAHRAMAA |
| QTS | Qatar Power Transmission System, one of the independent power producers (IPP's) in Qatar, supplying KAHRAMAA |
| RAA | Ras Abu Aboud, an area south of Doha |

| Abbreviation | Description |
|---|---|
| RAF | Ras Abu Fontas, an area south of Doha |
| RL | Ras Laffan, an area north of Doha |
| UHP | Umm Al Houl Power |
| RLPC | Ras Laffan Power Company, one of the independent power producers (IPP's) in Qatar, supplying KAHRAMAA |
| RO | Reverse Osmosis s used to reduce dissolved solids from feed waters with salinities up to 45,000 ppm TDS (total dissolved solids). Municipalities and industrial facilities are able to use RO permeate as a consistently pure drinking water supply and to transform drinking water to high purity water for industrial use at microelectronics, food and beverage, power, and pharmaceutical facilities. The technology is also very effective at removing bacteria, pyrogens, and organic contaminants. |
| S/S or SS (Substation) | Substation – normally refers to electrical power substation.An electrical power substation is a subsidiary station of an electricity generation, transmission and distribution system where voltage is transformed from high to low or the reverse using transformers. |
| SCADA | Supervisory Control & Data Acquisition System SCADA refers to a system that collects data from various sensors at a factory, plant or in other remote locations and then sends this data to a central computer which then manages and controls the data. SCADA is a term that is used broadly to portray control and management solutions in a wide range of industries. Some of the industries where SCADA is used are Water Management Systems, Electric Power, Traffic Signals, Mass Transit Systems, Environmental Control Systems, and Manufacturing Systems. |
| TA | Technical Affairs: Directorate level business unit in KAHRAMAA that manages large electricity and water network expansion and maintenance projects. |
| Transmission Substation | A transmission substation's main purpose is to connect together various transmission lines.The simplest case is where all transmission lines have the same voltage. In such cases, the substation contains high-voltage switches that allow lines to be connected together or isolated for maintenance. Transmission substations can range from simple to complex. A small "switching station" may be little more than a bus plus some circuit breakers. The largest transmission substations can cover a large area (several acres/hectares) with multiple voltage levels, and a large amount of protection and control equipment (capacitors, relays, switches, breakers, and voltage and current transformers). |
| Waste heat | Waste heat refers to heat produced by machines and technical processes for which no useful application is found, and is regarded as a waste by-product.The electrical efficiency of thermal power plants, defined as the ratio between the primary product and input energy, ranges from 30 to 70%. It is often difficult to find useful application for large quantities of low quality heat, so the heat is qualified as waste heat and is rejected to the environment. |
| Well field | Multiple borings into the ground 30 meters deep or deeper to extract water deposits. |
| WNA | Water Network Affairs: Directorate level business unit in KAHRAMAA that takes care of water reservoirs & network expansion and maintenance. |
| WPA | Water Purchase Agreement |

| Abbreviation | Description |
|---|---|
| Air Conditioning | “Air Conditioning” means the process of treating air to simultaneously control its temperature, humidity, and cleanliness and distribution of this air to meet the requirements of the conditioned space |
| District Cooling | “District Cooling” means the centralized production and distribution of Cooling Energy in the form of Chilled Water from a central chiller plant to multiple Buildings through a network of underground pipes |
| DC Plant | “DC Plant” means the plant, including pumping stations, chillers, TES facilities, Cooling Towers, associated electrical substations, emergency power supply equipment, systems control, switchgear, electrical installation auxiliary equipment, piping and other installations and ancillary equipment, used or useful in the production of Cooling Energy and the distribution of Chilled Water, operated and maintained for purposes of supporting the provision of DC Provider Services, to be installed on a DC Plot |
| DC Provider | “DC Provider” means an entity which generates and distributes Cooling Energy by means of Chilled Water using a DC System. |
| Ton of Refrigeration “(TR)” | “Ton of Refrigeration “(TR)” or means ton of refrigeration, a unit used to measure instantaneous Cooling Load, which is equivalent to 12,000 BTUs per hour (3,514 Watts). |
| Treated Sewage Effluent”(TSE) | “Treated Sewage Effluent” (TSE) An environmentally safe fluid waste stream which has been treated to standards required for its various uses (i.e. made fit-for-purpose) and made available by Ashghal. |
| GST | Ground Storage Tank. Used for water storage. |
| Air Conditioning | “Air Conditioning” means the process of treating air to simultaneously control its temperature, humidity, and cleanliness and distribution of this air to meet the requirements of the conditioned space |
| District Cooling | “District Cooling” means the centralized production and distribution of Cooling Energy in the form of Chilled Water from a central chiller plant to multiple Buildings through a network of underground pipes |
| DC Plant | “DC Plant” means the plant, including pumping stations, chillers, TES facilities, Cooling Towers, associated electrical substations, emergency power supply equipment, systems control, switchgear, electrical installation auxiliary equipment, piping and other installations and ancillary equipment, used or useful in the production of Cooling Energy and the distribution of Chilled Water, operated and maintained for purposes of supporting the provision of DC Provider Services, to be installed on a DC Plot |
| Cooling Load | “Cooling Load “ means rate of removal of heat energy expressed in Tons of Refrigeration . |
| Peak Cooling Load | “Peak Cooling Load ”means The maximum instantaneous cooling load occurred during the year expressed in Tons of Refrigeration . |