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e with Qatar National Vision (QNV 2030), National Development egy (QNDS2 2018-2022) and guidelines issued by the government the passage of time, KAHRAMAA continues its transformational ney for the development of the electricity sector over the years. RAMAA aims major expansion of the electricity network to meet dly growing demand. Following achievements highlight the elopments of the electricity sector of KAHRAMAA:



eration and Substations

electricity sector has witnessed remarkable development over the years. The production in 4Q 2013 was reached 8755 MW while it 4032 MW in 2008. It is a clear indication of the growth of the ricity sector in Qatar and it reached to about 10579 MW by the

of the year 2020. The remarkable expansion of the size of electricity's main transmission network led to ease the number of primary substations to 372 in May 2021as compared with 139 substations in 2Q 2008 and 87 substations in 2000.

This development coincided with the connection of the transmission network to some vital and important projects in the country, such as (Lusail City, Metro project, New Port, and 2022 World Cup Stadiums). The increase in the number of main stations has been accompanied with the expansion of the size of the cable and overhead lines network in different voltage levels 400/220/132/66/11 kV. At the same time, there was a major growth in the number of distribution substations to 18613 substations in 2Q 2020, with an increase of 5% compared to 2019. This number is planned to increase to more than 23400 substations by the end of the year 2026 to keep pace with the urban development, economic activity and events hosted by the State of Qatar.

The transmission network is expected to integrate a new solar production plant in order to comply with Qatar 2030 vision in two phases: the first phase will be launched in 2021 with a capacity of 350 MW and the project will be completed by 2022 with a total capacity of 700 MW.

Cables and OHL

Electricity Transmission network expands utilizing high quality products from approved manufacturers ensuring high performance & reliability.

In May 2021, the length of cables in the transmission network reached 3636 km, and the total length of overhead lines (OHL) 2003 km of different voltage levels. As for the distribution network, cable lengths reached 21000 km and overhead lines 2000 km, with an increase of 6% compared to May 2020. As per Electricity transmission network plan, the total length of overhead lines (OHL) will be 2310 km in January 2022.

NCC & DCC

KAHRAMAA is monitoring and managing electricity transmission and distribution networks around the clock, through three control centers:

1. National Control Center (NCC); to supervise and control for transmission network of 400 KV & 220 KV along with all power stations and coordination with GCCIA control Center.

2. Doha Grid Control Center (DGCC); to supervise and control for transmission network of 132, 66, 33 KV.

3. Distribution Control Center (DCC); to supervise and control for distribution network of 22, 11 KV.

In addition, there are two emergency control centers to ensure continuity of work in emergency situations. Work is also currently underway to establish a new control center for distribution to meet the massive expansion witnessed by the distribution network.

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Kahramaa's transmission and distribution system has the highest level of reliability, as it launches various stations with the latest devices and equipment. In addition to an integrated system to monitor and con this equipment to detect the expected malfunctions before they occur, which contributes to maintaining

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equipment and network stability and taking the urgent actions for its maintenance, supervised by a technical cadre with the highest level of expertise and competence.

In addition to the 9 emergency offices distributed throughout the State, equipped with technical teams, operating engineers, and the necessary equipment. They work as a first responder to interruptions' complaints raised by customers on the medium and low voltages to restore the electric current on time, in coordination with the concerned departments of the distribution and control departments.

GCC Interconnection Grid

All GCC member states are connected electrically to form the GCC interconnection network. Kahramaa Grid is being connected to the GCC network through 2 X 400 kV circuits from Logistic Zone Super (LZS) substation. This link is proven to be of vital backbone to the Kahramaa network as it is being used for emergency support during incidents, and for bilateral trading at some occasions.

Electricity Demand

The demand for electricity in the State of Qatar has increased in the recent years. The maximum network load increased from 941 MW on 1988 to 3,990 MW on 2008 and reached to 6255 MW in 2012, while the demand jumped to 8600 MW in 2020. An increase in the electrical load of Kahramaa network is expected to reach 8875 MW by the end of August 2021.

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