



Ref: DP/099/2017

25th September 2017

To

All Consultants/Contractors,
Plot/Project – Property Developers/Owners and Consumers,
Dubai

Design Guidelines - Distribution Network (11kV) **Design Requirements & Guidelines for MV (11kV) Supply**

Dear Customers,

The Authority is constantly endeavoring to improve its services to all Customers.

Please be informed that the Design guidelines issued under ref. DP/085/2016 dated 11.08.2016 is superseded. In line with DEWA Power Distribution Networks, please follow the below updated guidelines strictly, as applicable in your projects:

1. Ring Supply consisting of two feeders (two-feed ring) is mainly granted for power supply as normal feeding arrangement. Three-feed ring arrangement may be adopted for cases where all MV switchgears/RMUs are installed in one location to ensure the specific supply reliability.
2. For reliable power supply; N-1 offline criterion is considered. Hence, in case of power failure in one of the feeders, the other feeder should be capable to meet whole demand for maximum 6 hours duration.
3. DEWA standard 11 kV cable sizes are 3/C 300mm² Copper XLPE, 3/C 240mm² Copper XLPE, and 3/C 240mm² Aluminum XLPE.
4. The maximum sustained load of 11kV feeder is 175A/3MW (for 300mm² Copper XLPE cables – summer rating).
5. The maximum sustained load of 11kV feeder is 160A/2.7MW (for 240mm² Copper XLPE cables – summer rating).
6. For bulk loads such as furnaces or district cooling requiring direct HV supply (private equipment's), space for metering units at party's premises/substation should be considered. Necessary documents, drawings, SLD shall be submitted for DEWA's comments/approval at design stage.
7. All 11KV private switchgear shall have a rated symmetrical short circuit current not less than 31.5 kA, with a short time current rating of 3 seconds.
8. Single unit load demand should not exceed the maximum sustained current of DEWA's MV cable/feeder, which is maximum 175A/3MW for 11kV feeder.
9. Parallel operation of DEWA's MV feeders is not allowed at any circumstances, and accordingly proper interlocking (Electrical & Mechanical) shall be provided where required.
10. Standby generators are not allowed to operate in parallel with DEWA's network. Therefore, proper interlocking shall be provided where it is required.
11. The party should maintain power factor between 95% (lagging) and unity at point of connection with DEWA's MV Network.

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Our Vision: A Sustainable World-Class Utility

Our Mission: Meeting customer satisfaction and promoting Dubai's vision through delivery of electricity and water services at a world-class level of reliability, efficiency, safety and environment by a competent workforce and effective partnerships; supporting resources sustainability.

رؤيتنا: مؤسسة مستدامة على مستوى عالمي.
رسالتنا: الحصول على رضا المتعاملين وتعزيز رؤية دبي من خلال تقديم خدمات الكهرباء والمياه بمستوى عالمي من الاعتمادية والكفاءة والسلامة والبيئة. بكادر مؤهل وشراكات فعّالة، داعمين لديمومة الموارد.



12. The party should comply with DEWA's limits of maximum allowable motors' starting currents and corresponding maximum electrical power ratings for the motors as follow:-

Motor Electrical Power Rating	Max. Starting Current*
Less than or equal 600 KW	6 X Full Load Current
Above 600 KW and up to 1200 KW	4 X Full Load Current
Above 1200 KW and up to 1800 KW	3 X Full Load Current
Above 1800 KW and up to 2400 KW	2 X Full Load Current
Above 2400 KW and up to 3000 KW	1.5 X Full Load Current


* Maximum permitted current per feeder during motor starting (including other running motors and loads) should not exceed 350 Amp at any circumstances.

13. Motor specification, starting method characteristics & specifications, number of motor starts per day & operation sequence, SLD drawings etc. shall be submitted for approval at design stage.
14. For loads that inject harmonics currents into DEWA's network, harmonic (voltage & current) study at point of connection is required and to be submitted for DEWA approval at the design stage, the party has to comply with DEWA's limits of Harmonic Emissions for voltage and current based on IEC 61000-3-6: ed2.0-2008. Moreover, detailed specifications and size of equipment including harmonics spectrum shall be provided for DEWA approval.
15. Harmonics and Flickers site measurements shall be conducted by party after commissioning of project and report of measurements shall be submitted to DEWA. In case the measured values are exceeding DEWA's limits, the party should arrange for proper solution to reduce the harmonic emissions to the permissible limits.
16. Maximum allowable number of cables per trench for 11kV cables is 20 arranged in maximum two layers. (2.5 to 3-meter trench width on both sides of the road, close to 132/11kV S/S and 2.0/1.5 meters elsewhere depending on load distribution).
17. Clearance of minimum 2 meters shall be maintained between any MV cable trench and the surrounding heat sources such as 132kV cable trench.
18. Horizontal spacing between MV cables is 150mm (edge to edge for MV cables) and vertical spacing between layers is 100mm (edge to edge for 11kV cables).
19. Separate corridor shall be allocated for MV cable laying within party's premises along the road to ensure avoiding crossing between 132kV and MV cables.
20. Backfilling to be used for MV cables with soil resistivity below 1.6°C-m/W with the following conditions:-
- At maximum moisture content of 2% or less.
 - At 90% of compaction.
21. Single line diagram illustrating the protection schemes along with relay setting calculation shall be submitted for DEWA's comments and approval at design stage.

Thanking you in anticipation of your cooperation.

Yours faithfully,

For DUBAI ELECTRICITY & WATER AUTHORITY


(Rashid Bin Humaidan) 27/9/17

Executive Vice President-Distribution Power