

Service Schedule A-1: Dark Fiber

This Dark Fiber Services Schedule (“Service Schedule”) is subject to, and made a part of, the Master Services Agreement (“MSA”) entered into by and between DQE and Customer. Capitalized terms not defined herein will have the meaning ascribed to them in the MSA.

A. Provision of Fiber.

1. DQE shall provide, and Customer shall lease, fiber optic strands (the “Fiber”) (in quantity to be defined on the Customer Service Order) configured in a point-to-point or ring architecture between the Demarcation Locations (as defined below) within the Designated Facilities, set forth on the applicable Customer Service Order, pursuant to the terms and conditions of the Agreement. The Specifications (as defined below) for the Fiber are set forth in Sections E and H, below. “Demarcation Location(s)” shall mean the closest practical location inside the Designated Facilities, not to exceed 50 feet from the point of fiber entrance to the Designated Facilities, for placement of DQE’s dark fiber terminal.
2. Customer shall provide access from the Demarcation Location of the Designated Facilities to the DQE fiber optic network. Customer shall be responsible for obtaining the license or similar rights to extend the in-house fiber from DQE’s inside-the-building dark fiber terminal of the Designated Facilities.

B. Maintenance, Repair and Obligations. All maintenance and repair of the Fiber and of DQE Facilities used to provision the Fiber shall be performed by or under the direction of DQE at DQE’s sole cost and expense. All maintenance and repair of the Fiber shall be done in a professional and workmanlike manner. All maintenance and repair by DQE shall be completed in accordance with Section I, below. Customer shall not, nor shall it permit others to, rearrange, disconnect, remove, attempt to repair or otherwise access any of the facilities or equipment installed by DQE, except upon the written consent of DQE.

C. Use of Fiber Network.

1. Customer shall use the Fiber for the legal transmission of broadband data, video, voice and other information or communication services between the Designated Facilities. Such authorized use shall include, but is not limited to, use by Customer employees and contractors needed to assure technical performance of transmissions provisioned by Customer through the Fiber. Customer is not permitted to sublease dark fiber.
2. Customer shall use commercially reasonable efforts to provide DQE access to buildings connected to the Fiber at reasonable times and upon reasonable notice for purposes of performing maintenance to, and repair of, the Fiber.

D. Title. All rights, title, and interest in the Fiber at all times shall remain exclusively with DQE.

E. Fiber Specifications.

Dark Fiber: No signal provided by DQE.

Dark single mode (SMF-28) fiber provided. The total Fiber loss is not to exceed manufacturer specifications (“Specifications”). Such specifications shall include the fiber specifications as defined in the Corning specifications, below.

F. Route Specifications. DQE shall specify, design and install the cable along the most efficient route available as to provide Customer connectivity in the most effective manner possible.

G. Construction Completion Intervals. Construction Completion Intervals (as specified on the Service Order) are pre-sales estimates only, based upon various factors, including (but not exclusive of) the permitting required to establish right of way for new construction (which is not within complete control of DQE). Because some of the factors are outside the control of DQE, the intervals are DQE's best estimate of completion timeframes, based upon past experience, but do not represent a firm commitment to meet specific delivery dates or timeframes.

H. Corning Fiber Specifications. DQE will meet the optical specifications as detailed below for all cable installed by DQE:

1. Optical Fiber Specifications - Singlemode Fiber

Parameter	Specification	Units
Maximum attenuation, at 1550nm (A1)	0.50	dB/km
Cladding diameter	125 ±3	um
Cutoff Wavelength	1250 ±100	nm
Zero dispersion wavelength	1310 ±12	nm
Maximum dispersion (at 1285-1330 nm)	3.5	ps/(nm km)

2. Splice Loss

Splice loss on DQE cables will average less than or equal to 0.3 dB for all splices DQE makes under this Agreement. The 0.3 dB splice average will only apply to splices between cables of identical physical and optical properties (i.e. core and cladding dimensions, refractive index and optical loss characteristics).

3. End-To-End Attenuation Acceptance Criteria

The cable system will be tested at the wavelength specified for each cable type as specified below unless otherwise stated in this Agreement:

Singlemode fiber - 1550 nm.

The end-to-end attenuation acceptance criteria will be based on the following formula:

$$\text{Maximum acceptable end-to-end attenuation} = (A \times L) + (0.3 \times N_{\text{sp}}) + C$$

where:

A = Maximum attenuation at wavelength (A1) as specified in section A above.

L = Optical length of the cable in kilometers (km).

N_{sp} = Number of fiber splices in the cable system.

C = Connector/pigtail loss. The attenuation contribution of each pigtail with associated connector is considered to be 1.3 dB, comprised of 1.0 dB connector loss and 0.3 dB splice loss (pigtail to OSP cable splice).

I. Service Level Maintenance for Fiber

1. All maintenance and repair of the Fiber and of DQE facilities used to provision the Fiber shall be performed by or under the direction of DQE at DQE's sole cost and expense.
2. DQE may temporarily interrupt the service provided hereunder for scheduled maintenance of the Fiber. DQE shall work closely with the Customer to coordinate any outage or maintenance requests, initiated by either party, to ensure minimal network downtime. DQE will provide a minimum notification of fourteen (14) days prior to any scheduled outage. All scheduled maintenance shall be completed during the hours of 6pm to 8am ("Off-Hours"). Scheduled outages will affect only one side of the ring at a time and therefore will not result in total service interruption. DQE will maintain the Fiber twenty-four (24) hours a day, seven (7) days per week throughout the Term.
3. In the event that Customer becomes aware of a network failure, Customer will contact DQE's NOC Support Line. DQE dispatch will contact the DQE manager and inform him/her of the situation. DQE will respond to Customer within one (1) hour. The DQE manager will contact appropriate maintenance personnel and implement a detailed plan for restoration in accordance with the following:
 - a. Emergency Repair. DQE's maintenance employees shall be available for dispatch twenty-four (24) hours a day, seven (7) days a week. DQE shall have its first maintenance employee at the site requiring a maintenance activity within four (4) hours from the time of alarm identification by DQE's Network Operations Center or notification by Customer, whichever occurs first. Emergency maintenance is defined as any service-affecting situations requiring an immediate response. **NOTE: DQE's ability to make emergency repairs will be contingent upon DQE being granted access to work on a fiber issue. DQE's obligations under this section shall not commence until such time as all unsafe conditions have been addressed and access has been cleared by emergency responders/personnel and the relevant power company.**
 - b. Permanent Repair. Within twenty-four (24) hours after completion of an emergency repair, DQE shall commence its planning for permanent repair, shall notify Customer of such plans, and shall implement such permanent repair within a mutually agreed time thereafter.
4. If Customer receives no response within one (1) hour, Customer shall utilize the escalation process provided at www.dqecom.com.