DARK FIBER

1. **SERVICE DESCRIPTION.** DQE dark fiber ("Fiber") provides a lease of designated dark fiber strands between two points (each a "Designated Facility") in a ring or point-to-point configuration as specified in an applicable Customer Service Order. No signal is provided on the Fiber by DQE.

2. **PROVISION OF FIBER.**

   A. **Fiber Lease.** DQE shall provide, and Customer shall lease, the Fiber between the Demarcation Locations (as defined below) within the Designated Facilities, set forth on the applicable Customer Service Order. "Demarcation Locations" 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. All rights, title, and interest in the Fiber at all times shall remain exclusively with DQE. Customer is not permitted to sublease the Fiber.

   B. **Customer Access.** 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. Customer shall use commercially reasonable efforts to provide DQE access to Designated Facilities at reasonable times and upon reasonable notice for purposes of performing maintenance to, and repair of, the Fiber.

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

   D. **Construction Completion Intervals.** Construction Completion Intervals (as specified on an applicable Customer 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.

3. **MAINTENANCE AND REPAIR.** DQE will maintain the Fiber twenty-four (24) hours a day, seven (7) days per week. All maintenance and repair of the Fiber and DQE Facilities 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. 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.

   E. **Scheduled Maintenance**. DQE may temporarily interrupt Customer's use of the Fiber 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) calendar days prior to any scheduled outage. All scheduled maintenance shall be completed during the hours of 6pm to 8am ("Off-Hours"). If applicable, scheduled outages will affect only one side of the ring at a time and therefore will not result in total service interruption. In the event DQE needs to perform

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emergency scheduled maintenance every effort will be made to provide at least 12 hours in advance. Emergency scheduled maintenance is performed in a situation where the network is severely degraded, and failure is imminent.

F. **Outage Notification.** In the event that Customer becomes aware of a failure of the Fiber, Customer will contact DQE's NOC. DQE will respond to Customer within one (1) hour and implement a detailed plan for restoration. If Customer receives no response within one (1) hour, Customer may use the escalation process provided to Customer.

G. **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 NOC or notification by Customer, whichever occurs first. Emergency maintenance is defined as any service-affecting situations requiring an immediate response. **DQE's ability to make emergency repairs will be contingent upon DQE being granted access to work on the Fiber. DQE's obligations to commence repair shall not commence until such time as all unsafe conditions have been addressed and access has been granted by emergency responders and the relevant power company.**

H. **Permanent Repair.** Within twenty-four (24) hours following completion of an emergency repair, DQE shall commence planning for permanent repair, notify Customer of its plans, and complete the permanent repair within the mutually agreed time.

4. **FIBER SPECIFICATIONS.** The Fiber will consist of dark single mode (SMF-28) fiber. The total Fiber loss is not to exceed the following manufacturer specifications from Corning.

A. Optical Fiber Specifications – Single mode 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)

B. 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).

C. End-To-End Attenuation Acceptance Criteria

The cable system will be tested at the wavelength specified for each cable type as follows unless otherwise stated in the applicable Customer Service Order. For single mode Fiber

(1550 nm), the end-to-end attenuation acceptance criteria will be based on the following formula:

Maximum acceptable end-to-end attenuation = (A X L)+(0.3 X Nsp)+C

where:

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

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

Nsp = 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).