WIND TURBINE GENERATOR ELECTRICAL INTERCONNECTION
CONCEPTUAL ONE LINE DIAGRAM

EXISTING NSTAR 22.8 kV
OVERHEAD DISTRIBUTION
CIRCUIT #98A ON
TECHNOLOGY PARK DRIVE

NEW NSTAR THREE PHASE
OVERHEAD 22.8 kV GANG
OPERATED DISCONNECT
SWITCH

ALL NEW EQUIPMENT BEYOND THE NSTAR
INTERCONNECTION POINT SHALL BE
PROVIDED BY CONTRACTOR

NEW NSTAR THREE PHASE.
OVERHEAD 25 kV CLASS
RECLOSED WITH SEL-651R
RECLOSED CONTROL
(RADIO CONTROLLED BY NSTAR)

NEW NSTAR THREE PHASE
OVERHEAD PRIMARY REVENUE
METER
(BI-DIRECTIONAL, 4 QUADRANT)

25 kV CLASS UNDERGROUND CABLE
CIRCUIT: 3 – 1/C, #2 AWG AL IN
CONCRETE ENCASED DUCTBANK
(DISTANCE APPROX. 250 FT.)

EXISTING NSTAR 25 kV SUPPLY
CIRCUIT TO 82 TECHNOLOGY PARK
(DISTANCE APPROX. 150 FT.)

NEW NSTAR THREE PHASE
PRIMARY RISER POLE WITH 3 – 1/P
FUSED CUTOUTS AND
SURGE ARRESTORS

EXISTING NSTAR THREE PHASE
PRIMARY RISER POLE WITH 3 – 1/P
FUSED CUTOUTS AND
SURGE ARRESTORS

INTERCONNECTION POINT FOR
FUTURE PHOTOVOLTAIC
ELECTRICAL SYSTEM

25 kV CLASS UNDERGROUND CABLE
CIRCUIT: 3 – 1/C, #2 AWG AL IN
CONCRETE ENCASED DUCTBANK
(DISTANCE APPROX. 75 FT.)

THREE PHASE PRIMARY RISER
POLE WITH 3 – 1/P FUSED
CUTOUTS AND
SURGE ARRESTORS

25 kV CLASS UNDERGROUND CABLE
CIRCUIT: 3 – 1/C, #2 AWG AL IN
CONCRETE ENCASED DUCTBANK
(DISTANCE APPROX. 15 FT.)

NEW NSTAR THREE PHASE
OVERHEAD PRIMARY REVENUE
METER
(BI-DIRECTIONAL, 4 QUADRANT)

3 – PHASEPADMOUNT 25 kV
CLASS TYPE PME-3 GANG
OPERATED
DISCONNECT SWITCH WITH
VISIBLE OPEN (PADLOCKABLE)

25 kV CLASS UNDERGROUND CABLE
CIRCUIT: 3 – 1/C, #2 AWG AL IN
CONCRETE ENCASED DUCTBANK
(DISTANCE APPROX. 250 FT.)

NEW NSTAR THREE PHASE
OVERHEAD 22.8 kV GANG
OPERATED DISCONNECT
SWITCH

208 VOLT MAIN CIRCUIT BREAKER

KWH/KW DEMAND METER FOR
82 TECHNOLOGY PARK DRIVE

NEW NSTAR THREE PHASE
OVERHEAD PRIMARY REVENUE
METER
(BI-DIRECTIONAL, 4 QUADRANT)

120/208 VOLT MAIN
DISTRIBUTION PANEL

82 TECHNOLOGY PARK DRIVE
EXISTING ELECTRICAL EQUIPMENT

NEW EQUIPMENT

INTERCONNECTION POINT FOR
FUTURE PHOTOVOLTAIC
ELECTRICAL SYSTEM

25 kV CLASS SECTIONALIZING
CABINET

WIND TURBINE GENERATOR STEP-UP
TRANSFORMER (GSU)
22.8/13.2 kV – 690/398 VOLTS
2000/2250 KVA (55 C/65 C)
Z = 5.75%

REVENUE ACCURACY KWH METER AND
METER TEST SWITCH IN NEMA 4 ENCLOSURE
(3 - CT'S AND 3 - PT'S TO BE INSTALLED IN
SECONDARY COMPARTMENT OF GSU)

1 KV CLASS UNDERGROUND CABLE CIRCUIT:
SIX (6) SETS OF 3 – 1/C, 500 KCMIL CU (WITH
GROUND WIRES) IN CONCRETE ENCASED
DUCTBANK (DISTANCE APPROX. 25 FT.)

WIND TURBINE GENERATOR
PROTECTIVE RELAYS
(INCLUDED WITH WIND
TURBINE GENERATOR)

GENERATOR MAIN CIRCUIT
BREAKER AND CONTACTOR
(INCLUDED WITH WIND
TURBINE GENERATOR)

WIND TURBINE GENERATOR
1.65 MW (MAX.), 60 HZ
0.95 LEADING – 0.95
LAGGING POWER FACTOR

EXISTING EQUIPMENT

PADMOUNT
TRANSFORMER
22.8/13.2 kV – 120./208 V
75 KVA

1 KV CLASS UNDERGROUND CABLE CIRCUIT:
SIX (6) SETS OF 3 – 1/C, 500 KCMIL CU (WITH
GROUND WIRES) IN CONCRETE ENCASED
DUCTBANK (DISTANCE APPROX. 25 FT.)

PROTECTIVE DEVICE FUNCTIONS:
27 – undervoltage relay
51 – phase overcurrent relay
51N – neutral overcurrent relay
59 – overvoltage relay
81U – underfrequency relay
81O – overfrequency relay

RICHARD C. GROSS P.E., INC.
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