

Duluth IAP (ANG) Electric Distribution System

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J1 Duluth IAP (ANG) Electric Distribution System

J1.1 Duluth IAP (ANG) Overview

J1.2 Electric Distribution System Description

The 148th Fighter Wing is located at Duluth International Airport in St. Louis County, Minnesota, seven miles northwest of downtown Duluth. The main base occupies 153.3 acres on the northeast corner of the airport. Additionally, the munitions storage area (physically separated from the main base) occupies 16.71 acres north of Runway 09/27. The base has a total of 37 buildings; 18 industrial and 19 administrative. Normal base population is 320 personnel but surges to 1100 occur once each month during drill sessions. The 148th currently flies the F-16 ADF Fighting Falcon. Its mission is to “Provide the best Air Defense, Service, and Support to the State and the Nation in times of peace and war.

J1.2.1 Electric Distribution System Fixed Equipment Inventory

The Duluth IAP (ANG) electric distribution system consists of all appurtenances physically connected to the distribution system from the point in which the distribution system enters the Installation and Government ownership currently starts to the point of demarcation, defined by the Right of Way. The system may include, but is not limited to, transformers, circuits, protective devices, utility poles, ductbanks, switches, street lighting fixtures, and other ancillary fixed equipment. The actual inventory of items sold will be in the bill of sale at the time the system is transferred. The following description and inventory is included to provide the Contractor with a general understanding of the size and configuration of the distribution system. The Government makes no representation that the inventory is accurate. The Contractor shall base its proposal on site inspections, information in the technical library, other pertinent information, and to a lesser degree the following description and inventory. Under no circumstances shall the Contractor be entitled to any service charge adjustments based on the accuracy of the following description and inventory.

Specifically excluded from the electric distribution system privatization are:

1. Street Lighting
2. Parking area lighting

J1.2.1.1 Description

The Duluth IAP (ANG) Electrical Distribution System is Y configured 13,800 volts fed overhead from an H-frame through a three phase pole mounted disconnect. The system then splits into two sets of cutouts. After the cutouts, the high voltage lines run underground. One cutout feeds the aircraft parking facilities through a 480 volt pad mounted transformer with the high voltage line continuing underground to building 221 to feed a 208 volt pad mounted transformer. The other cutout feeds the rest of the base. This feed runs underground to two substations and 16 pad mounted transformers. The substations are 208 volts and the pad-mounted transformers are either 208 or 480 volts. The point of demarcation for service entering the base is at the stress cone connections for the two underground feeders to the main base and building 500 on the poles located near the intersection of Haines Road and the Airport Cargo Road and ends at the line side lugs of each building’s main disconnect(s) The distribution system contains approximately 10,255 linear feet of wiring of which approximately 98%

is underground in conduit or direct bury. Wiring was installed from the 1950's to the present with approximately 66% being installed between 1984 and 1995. There are two 3-phase substation transformers installed in 1949 and 1962 with four substation switches and 9 feeder breakers. System also has 22 oil filled pad mounted transformers that range from 50 kva to 750 with ages from 1963 to 1988, 17 wood utility poles installed in 1949 and considered to be in average condition, 7 overhead line switches, and 17 electrical manholes that range in dept from 4 feet to 8 feet that were constructed in 1949 through 1961 and are pre-cast concrete in good condition. Overall condition of the distribution system is considered to be good with two projects planned, one to upgrade the system and one to increase capacity at one building.

There is one Off-Installation site that is maintained by Duluth IAP (ANG) Air National Guard CE, the Weapons Storage area. The Weapons Storage area electrical distribution system is fed from the main base electrical system, entering the area via overhead lines at 14,400 volts. The power is fed to a 45 foot H-frame where it is stepped down to 2400 volts. It is run underground to cross under the runway. Then it goes to another H-frame and stepped up to 14,400 volts. It is fed overhead into the compound to a 300KVA pad mounted transformer. The secondary voltage is 480/277 volts. This off-installation system is also considered to be in good condition with no known deficiencies.

Base (to include the Weapon Storage area) is metered for service from one master meter located on Haines Road at the entry section of Haines Road and Airport Cargo Road.

J1.2.1.2 Inventory

Table 1 provides a general listing of the major electric distribution system fixed assets for the Duluth IAP (ANG) electric distribution system included in the sale.

TABLE 1
Fixed Inventory
Electric Distribution System Duluth IAP (ANG)

Item	Size	Quantity	Unit	Approximate Year of Construction
Underground Circuits				
- 3ph, 3w, 15000v in conduit	#2 AWG	1500	LF	1961
	#2 AWG	100	LF	1963
	#2 AWG	170	LF	1978
	#2 AWG	500	LF	1985
	#2 AWG	500	LF	1986
- 3ph, 3w, 15000v, direct bury	#2 AWG	660	LF	1984
	#2 AWG	730	LF	1988
	#2 AWG	780	LF	1992
	#2 AWG	1400	LF	1995
	#2 AWG	150	LF	1967
- 3ph, 3w, 15000v, direct bury	#1/0 AWG	110	LF	1967
	#1/0 AWG	150	LF	1988
- 3ph, 3w, 15000v, direct bury	#4/0 AWG	130	LF	1958

Item	Size	Quantity	Unit	Approximate Year of Construction
	#4/0 AWG	140	LF	1961
	#4/0 AWG	25	LF	1988
- 3ph, 3w, 15000v, direct bury	#300 AWG	980	LF	1962
	#300 AWG	300	LF	1988
- 3ph, 3w, 15000v, direct bury	#350 AWG	300	LF	1962
	#350 AWG	100	LF	1981
	#350 AWG	180	LF	1992
	#350 AWG	360	LF	1995
- 3ph, 4w, 15000v, in conduit	#350 AWG	230	LF	1962
- 3ph, 3w, 15000v, direct bury	#400 AWG	25	LF	1985
- 3ph, 4w, 15000v, in conduit	#500 AWG	70	LF	1977
- 3ph, 3w, 15000v, direct bury	#500 AWG	150	LF	1962
	#500 AWG	25	LF	1963
	#500 AWG	25	LF	1975
	#500 AWG	40	LF	1981
	#500 AWG	25	LF	1984
Overhead Circuits				
- 3 ph, 4w, conductor	#2 CU	3200	LF	1958
- 3ph, 4w, conductor	#6 CU	70	LF	1958
- 3ph, 4w, conductor	#2/0 CU	330	LF	1961
3ph Substation Transformers	300 KVA	1	EA	1949
	300 KVA	1	EA	1962
Utility Poles (wood)	45 FT	17	EA	1949
Switches – Overhead Line	600 A-L	6	EA	1949
	600 A-L	1	EA	1998
Substation Switches, Type L	600 amp	2	EA	1962
	600 amp	1	EA	1981
	100 amp	1	EA	1949
Substation Feeder Breakers	600 amp	5	EA	1962
	600 amp	4	EA	1949
3ph Transformers, oil filled, pad mounted	150 KVA	3	EA	1978
	150 KVA	1	EA	1988
	225 KVA	2	EA	1984

Item	Size	Quantity	Unit	Approximate Year of Construction
	300 KVA	4	EA	1976
	300 KVA	1	EA	1998
	500 KVA	1	EA	1963
	500 KVA	1	EA	1988
	750 KVA	1	EA	1977
3 ph Transformers, pole mounted	50 KVA	6	EA	1958
1 ph Transformers, oil filled, pad mounted	50 KVA	3	EA	1950
	75 KVA	3	EA	1961
	100 KVA	3	EA	1950
Electric Manholes				
- Precast 4 Foot Deep		1	EA	1949
- Precast 6 Foot Deep		8	EA	1961
- Precast 8 Foot Deep		8	EA	1949

Notes:

AWG = American Wire Gauge
EA = each
LF = linear feet
KVA = nominal kilovolt-amperes
Ph – phase
v = volts
w = wire

J1.2.2 Electric Distribution System Non-Fixed Equipment and Specialized Tools

Table 2 lists other ancillary equipment (spare parts) and **Table 3** lists specialized vehicles and tools included in the purchase. Offerors shall field verify all equipment, vehicles, and tools prior to submitting a bid. Offerors shall make their own determination of the adequacy of all equipment, vehicles, and tools.

TABLE 2
Spare Parts
Electric Distribution System Duluth IAP (ANG)

Qty	Item	Make/Model	Description	Remarks
None				

TABLE 3
Specialized Vehicles and Tools
Electric Distribution System Duluth IAP (ANG)

Description	Quantity	Location	Maker
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Description	Quantity	Location	Maker
None			

J1.2.3 Electric Distribution System Manuals, Drawings, and Records

Table 4 lists the manuals, drawings, and records that will be transferred with the system.

TABLE 4
Manuals, Drawings, and Records
Electric Distribution System Duluth IAP (ANG)

Qty	Item	Description	Remarks
1		AutoCAD Electrical Utility Map drawings Ver. 2000	Will provide electronic file copy

J1.3 Specific Service Requirements

The service requirements for the Duluth IAP (ANG) electric distribution system are as defined in the Section C, *Description/Specifications/Work Statement*.

J1.4 Current Service Arrangement

The current electricity provider is Minnesota Power. Average Monthly Usage is 410,472 KWH and the monthly usage fluctuations range from 311,663 KWH to 538,021 KWH. There are no existing commitments or special service agreements at this time with Minnesota Power.

J1.5 Secondary Metering

J1.5.1 Existing Secondary Meters

Table 5 provides a listing of the existing (at the time of contract award) secondary meters that will be transferred to the Contractor. The Contractor shall provide meter readings for all secondary meters IAW Paragraph C.3 and J1.6 below.

TABLE 5
Existing Secondary Meters
Electric Distribution System Duluth IAP (ANG)

Meter Location	Meter Description
Bldg# 252	3 phase KWH meter
Bldg# 255	3 phase KWH meter
Bldg# 223	3 phase KWH meter
Bldg# 265	3 phase KWH meter
Bldg# 218	3 phase KWH meter

J1.5.2 Required New Secondary Meters

The Contractor shall install and calibrate new secondary meters as listed in **Table 6**. New secondary meters shall be installed IAW Paragraph C.13, Transition Plan. After installation, the Contractor shall maintain and read these meters IAW Paragraphs C.3 and J1.6 below.

TABLE 6

New Secondary Meters
Electric Distribution System Duluth IAP (ANG)

Meter Location	Meter Description
Bldg# 211	3 phase KWH meter
Bldg# 219	3 phase KWH meter
Bldg# 220	3 phase KWH meter
Bldg#222	3 phase KWH meter
Bldg# 250	3 phase KWH meter
Bldg# 280	3 phase KWH meter

J1.6 Monthly Submittals

The Contractor shall provide the Government monthly submittals for the following:

1. Invoice (IAW G.2). The Contractor's monthly invoice shall be presented in a format proposed by the Contractor and accepted by the Contracting Officer. Invoices shall be submitted by the 25th of each month for the previous month. Invoices shall be submitted to the person identified at the time of contract award.
2. Outage Report. The Contractor's monthly outage report will be prepared in the format proposed by the Contractor and accepted by the Contracting Officer. Outage reports shall be submitted by the 25th of each month for the previous month. Outage reports shall be submitted to the person identified at the time of contract award.
3. Meter Reading Report. The monthly meter reading report shall show the current and previous month readings for all secondary meters. The Contractor's monthly meter reading report will be prepared in the format proposed by the Contractor and accepted by the Contracting Officer. Meter reading reports shall be submitted by the 15th of each month for the previous month. Meter reading reports shall be submitted to the person identified at the time of contract award.
4. System Efficiency Report. If required by Paragraph C.3, the Contractor shall submit a system efficiency report in a format proposed by the Contractor and accepted by the Contracting Officer. System efficiency reports shall be submitted by the 25th of each month for the previous month. System efficiency reports shall be submitted to the person identified at the time of contract award.

J1.7 Energy Saving Projects

IAW Paragraph C.3, Requirement, the following projects have been implemented on the distribution system by the Government for energy conservation purposes: None.

J1.8 Service Area

IAW Paragraph C.4, Service Area, the service area is defined as all areas within the Duluth IAP (ANG) boundaries and one off-installation service area at the Weapons Storage area (see paragraphs J1.2 and J1.2.1.1 for details) .

J1.9 Off-Installation Sites

There is one Off-Installation site that is maintained by Duluth IAP (ANG) Air National Guard CE, the Weapons Storage area. The Weapons Storage area electrical distribution system is overhead 14,400 volts and is approximately 41 years old. The power is fed to a 45 foot H-frame where it is stepped down to 2400 volts. It is run underground to cross under the runway. Then it goes to another H-frame and stepped up to 14,400 volts. It is fed overhead into the compound to a 300KVA pad mounted transformer. The secondary voltage is 480/277 volts. System assets include 6 pole mounted 50 kva transformers and one pad mounted 300 kva transformer, 3200 linear feet of 3 phase 4 conductor #2 gauge wiring, and 6 single phase re-closures. Annual usage of electrical power on this area is 21,319 KWH.

J1.10 Specific Transition Requirements

IAW Paragraph C.13, Transition Plan, **Table 7** provides a listing of service connections and disconnections required upon transfer.

TABLE 7
Service Connections and Disconnections
Electric Distribution System Duluth IAP (ANG)

Location	Description
None	

J1.11 Government Recognized System Deficiencies

Table 8 provides a listing of system improvements that the Government has planned. The Government recognizes these improvement projects as representing current deficiencies associated with the Duluth IAP (ANG) electric distribution system. If the system is sold, the Government will not accomplish these planned improvements. The Contractor shall make a determination as to its actual need to accomplish and the timing of any and all such planned improvements. Capital upgrade projects shall be proposed through the Capital Upgrades and Renewal and Replacement Plan process and will be recovered through Schedule L-3. Renewal and Replacement projects will be recovered through Sub-CLIN AB.

TABLE 8
System Deficiencies
Electric Distribution System Duluth IAP (ANG)

Project Location	Project Description
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Building # 231/Project# 96021

Upgrade at building 231 to add a new high voltage feed and transformer to increase service capability at this location as current capacity is below needed service.

Base Area/Project# 96005

Eliminate the extensive secondary distribution system and substations and replace with a primary system of pad mounted transformers at each affected facility.
