

ATTACHMENT J1

Goodfellow AFB Electric Distribution System

TABLE OF CONTENTS

GOODFELLOW AFB ELECTRIC DISTRIBUTION SYSTEM I

J1 GOODFELLOW AFB ELECTRIC DISTRIBUTION SYSTEM..... J1-1

J1.1 GOODFELLOW AFB OVERVIEW J1-1

J1.2 ELECTRIC DISTRIBUTION SYSTEM DESCRIPTION J1-2

J1.2.1 Electric Distribution System Fixed Equipment Inventory J1-2

 J1.2.1.1 Description..... J1-2

 J1.2.1.2 Inventory J1-3

J1.2.2 Electric Distribution System Non-Fixed Equipment and Specialized Tools J1-5

J1.2.3 Electric Distribution System Manuals, Drawings, and Records J1-6

J1.3 SPECIFIC SERVICE REQUIREMENTS J1-6

J1.4 CURRENT SERVICE ARRANGEMENT J1-7

J1.5 SECONDARY METERING..... J1-7

J1.5.1 Existing Secondary Meters..... J1-7

J1.5.2 Required New Secondary Meters J1-7

J1.6 MONTHLY SUBMITTALS..... J1-8

J1.7 ENERGY SAVING PROJECTS J1-8

J1.8 SERVICE AREA..... J1-8

J1.9 OFF-INSTALLATION SITES..... J1-8

J1.10 SPECIFIC TRANSITION REQUIREMENTS J1-9

J1.11 GOVERNMENT RECOGNIZED SYSTEM DEFICIENCIES..... J1-9

J1.12 RIGHT OF ACCESS TO THE UTILITY SYSTEM J1-9

J1.12.1 Map of Premises..... J1-9

J1.12.2 Description of Premises J1-10

 J1.12.2.1 General Description of the Utility System, Lateral Extent of the Right-of-Way, and Points of Demarcation: J1-10

 J1.12.2.2 Description of Restricted Access Areas: J1-13

J1.12.3 Environmental Baseline Survey J1-13

List of Tables

Table 1 Fixed Inventory J1-3

Table 2 Spare Parts J1-5

Table 3 Specialized Vehicles and Tools J1-5

Table 4 Manuals, Drawings, and Records..... J1-6

Table 5 Existing Secondary Meters J1-7

Table 6 New Secondary Meters J1-7

Table 7 Service Connections and Disconnections J1-9

Table 8 System Deficiencies J1-9

Table 9 Points of Demarcation..... J1-10

Table 10 Unique Points of Demarcation..... J1-12

Table 11 Restricted Access Areas J1-13

J1 Goodfellow AFB Electric Distribution System

J1.1 Goodfellow AFB Overview

Goodfellow AFB, located in the southeast portion of San Angelo, Tom Green County, Texas, is an Air Education and Training Command (AETC) installation that conducts intelligence, fire suppression, and special instruments operation training. The host command is the 17th Training Wing (17 TRW), which trains more than 9,300 personnel annually from all military services. Tenant units include:

- 344th Military Intelligence Battalion/111th Military Intelligence Brigade
- Naval Technical Training Detachment
- Marine Corps Detachment
- Department of Transportation Tire Testing Facility

Goodfellow AFB occupies 1,132 acres and contains approximately 200 buildings enclosing over 2.2 million square feet (sf).¹ The Base also leases 200 units of 801-Leased Military Family Housing. The Base's airfield has been deactivated and has no flying operations.

The Base has a total population of over 5,000, including military personnel and dependents, civilian employees and support personnel, and an average daily student load of approximately 2,250. Goodfellow AFB's annual payroll is approximately \$163 million (combined military and civilian) and the Base is estimated to contribute approximately \$215 million to the local economy through civilian employment, contracting, and purchases from local businesses.

Goodfellow AFB was initially a pilot training installation from its establishment in 1940 (as the San Angelo Air Corps Basic Flying Training School) through 1958. Flying operations ceased in 1958 and the Base was redesignated a USAF advanced cryptologic training center. The Base began providing cryptologic training to other services in the 1960s, and its mission expanded in 1985 with the consolidation of intelligence training operations from three other AFBs. AETC activated the 17 TRW in 1993, which further diversified and expanded Goodfellow AFB's mission.

A number of new facilities are planned for Goodfellow AFB, and existing facilities will be upgraded or replaced to meet future mission requirements. Key projects planned for the Base are expected to increase the total square footage in Base buildings by approximately 7.9 percent over the next 5 years.

¹ The nonresidential structures include offices, industrial maintenance and repair facilities, and community service facilities (e.g., Goodfellow Clinic and commissary). On-Base residential structures include dormitories, 24 fourplexes, and 3 detached single-family residences.

J1.2 Electric Distribution System Description

J1.2.1 Electric Distribution System Fixed Equipment Inventory

The Goodfellow AFB 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, duct banks, switches, 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. Specifically excluded from the electric distribution system privatization are:

- Security, street, and parking lot lights.
- Ball Field Lighting
- Fire School Exterior Area Lighting
- Emergency and Standby Generators and associated switchgear and transfer switches.
- Base owned Electric watt-hour meters and associated equipment and enclosures.

J1.2.1.1 Description

Electric power is supplied to Goodfellow AFB through two 12.47-kilovolt (kV) overhead feeders from American Electric Power (AEP) through the Concho Valley Electric Cooperative (CVE) Concho Plant substation. The feeders, designated "East" and "West," extend from a CVE switching station to the Base-owned switchgear building near the northwest corner of the Base. The distribution system from the switchgear building consists of five circuits, designated "A" through "E." The West feeder supplies power to circuits A, D, and E; the East feeder supplies power to circuits B and C.

Circuits A, B, and C include overhead and underground lines; circuits D and E are underground. The feeder circuits consist of three-phase, 500 thousand-circular-mil (MCM) cable rated at 15 kV; 250 MCM cable is used for services to individual buildings.

CVE installed a reverse power relaying and switching arrangement to allow automatic transfer between the East and West feeders in the event of a power interruption; however, when the second feeder comes back on, the power can flow from one feeder to the other. To prevent this from affecting the CVE system, the on-base bus tie switches have CVE locks, and CVE coordinates the closing of the ties. Circuit section isolation is achieved through the switches in the distribution system.

The overhead distribution system has gang-operated switches and solid blade disconnects to interconnect circuits for temporary backfeed, and for circuit isolation. Many of the underground portions of the distribution system include switching cabinets for backfeed and circuit isolation. Underground circuit E, however, has no backup feed to another circuit. This circuit feeds the Fire Training School, and the buildings in this area have

standby diesel generators. Goodfellow AFB is working with AEP and CVE to locate an additional feeder and switching station at the south side of the Base to provide backup power to this circuit.

The underground circuits and the majority of the transformers and switches were constructed in the 1990s; the overhead circuits and most other system components were constructed in the 1980s. All of the overhead, poles, and conductors were replaced with a new overhead system in 1985. The newer buildings have been constructed using underground circuits.

J1.2.1.2 Inventory

Table 1 provides a general listing of the major electric distribution system fixed assets for the Goodfellow AFB electric distribution system included in the sale.

TABLE 1
Fixed Inventory
Electric Distribution System Goodfellow AFB

Item	Size	Quantity	Unit	Approximate Year of Construction
Switch Stations				
Metal Enclosed Switchgear, 12.47 kV	1200 Amp	8	EA	1980
Ground Grid	#1/0 CU	400	LF	1980
Chain Link Fence	8'	140	LF	1980
Metal Building	12' X 20'	240	SF	1980
Concrete Foundation and slab	15' X 24'	360	SF	1980
Protective Relays		21	EA	1980
Battery Station (eight 6-volt Batteries)	320 AH	8	EA	1980
Battery Charger	2,772 Watt	1	EA	1980
Potential Transformers	15KV	6	EA	1980
Current Transformers	600 to 5	21	EA	1980
Underground Circuits				
	AWG	Length (ft)		
3ph, 4w, 15000V, in conduit (5,660 LF)	250 Kcmil	22,640	SCLF	1995
3ph, 4w, 15000V, in conduit (13,208 LF)	350 Kcmil	52,832	SCLF	1995
3ph, 4w, 15000V, in conduit (28,302 LF)	500 Kcmil	113,208	SCLF	1995
Duct Bank, Concrete encased	2 – 4"C	14,570	LF	1995
Duct Bank, Concrete encased	4 – 4"C	2,450	LF	1995
Duct Bank, Concrete encased	2 – 5"C	14,150	LF	1995
Overhead Circuits				
3ph, 4w, 15000V, Conductor	#336 ACSR	56250	SCLF	1985
Ground conductor	#2 ACSR	18750	SCLF	1985
Transformers				
	Nom kVA	No.		
Pad Mount				
3-Phase	75	10	EA	1995

Item	Size	Quantity	Unit	Approximate Year of Construction
3-Phase	112.5	2	EA	1995
3-Phase	150	9	EA	1995
3-Phase	225	12	EA	1995
3-Phase	300	16	EA	1995
3-Phase	500	12	EA	1995
3-Phase	750	5	EA	1995
3-Phase	1000	3	EA	1995
3-Phase	1500	4	EA	1995
3-Phase	2000	1	EA	1995
3-Phase	2500	1	EA	1995
1-Phase	100	6	EA	1995
1-Phase	15	2	EA	1985
1-Phase	75	3	EA	1985
1-Phase	10	3	EA	1985
1-Phase	50	2	EA	1985
1-Phase	25	3	EA	1985
Pole Mount				
1-Phase	15	2	EA	1995
1-Phase	25	3	EA	1995
1-Phase	50	3	EA	1995
1-Phase	75	2	EA	1995
1-Phase	100	7	EA	1995
1-Phase	10	1	EA	1985
1-Phase	15	2	EA	1985
1-Phase	25	6	EA	1985
1-Phase	37.5	29	EA	1985
1-Phase	50	7	EA	1985
1-Phase	75	7	EA	1985
1-Phase	100	1	EA	1985
Utility Poles		Height (ft)	No.	
Class 2 poles		40	139	
Guys and Anchors (Assume 10% of poles)			14	EA 1985
Pole Grounds (Assume 4 per mile)			14	EA 1985
Concrete Pads (Assume 5' x 5' each trans.)			2350	SF 1985
Fused Cutout (each trans., 1 per phase)			314	EA 1985
Switches		Type	No.	
Pad Mount	2-Way	5	EA	1995
Pad Mount	3-Way	1	EA	1995
Pad Mount	4-Way	1	EA	1995
Pole Mount Gang Switch	2-way	6	EA	1985
Vaults		Type	No.	

Item	Size	Quantity	Unit	Approximate Year of Construction
Utility	6' X 8'	72	EA	1995

Notes:

ACSR = Aluminum Conductor Steel Reinforced

AH = Amp-Hour

AWG = American Wire Gauge

Ea = each

FT = Feet

Lf = linear feet

Nom kVA = nominal kilovolt-amperes

Ph – phase

SCLF = Single Conductor Linear Feet

SF = Square Foot

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 Goodfellow AFB

Qty	Item	Make/Model	Description	Remarks
1	Pad-Mount Trans.	N/A	1500 KVA	Serial # 18235346-001-01
1	Pad-Mount Trans.	Westinghouse	100 KVA	Serial # 84JF203044
1	Pad-Mount Trans.	Square D	750 KVA	Serial # 930114-C1
1	Pad-Mount Trans.	Cooper	500 KVA	Serial # 0337004817
1	Pad-Mount Trans.	Cooper	300 KVA	Serial # 0337004237
1	Pad-Mount Trans.	GE	140 KVA	Serial # 0513830-TUL
1	Pad-Mount Trans.	GE	225 KVA	Serial # 0513827-TUL
10	Pole-Mount Trans.	N/A	75 KVA	N/A
3	Pole-Mount Trans.	N/A	50 KVA	N/A
1	Pole-Mount Trans.	N/A	37.5 KVA	N/A
2	Pole-Mount Trans.	N/A	25 KVA	N/A
2	Pole-Mount Trans.	N/A	15 KVA	N/A

TABLE 3

Specialized Vehicles and Tools

Electric Distribution System Goodfellow AFB

Description	Quantity	Location	Maker
No specialized vehicles or tools are included in the privatization of this utility system.			

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 Goodfellow AFB

Qty	Item	Description	Remarks
1	Set of Compact Disks	Utility System Drawings (G-tabs)	Electric Distribution System
1	Set of Compact Disks	Electrical System Single-Line Diagram	Electric Distribution System

J1.3 Specific Service Requirements

The service requirements for the Goodfellow AFB electric distribution system are as defined in the Section C, *Description/Specifications/Work Statement*. The following requirements are specific to the Goodfellow AFB electric distribution system and are in addition to those found in Section C. If there is a conflict between requirements described below and Section C, the requirements listed below take precedence over those found in Section C.

- The Contractor shall not provide monthly meter reading reports IAW Paragraph J7.6. The Base will retain ownership all existing watt-hour meters and they will continue to perform meter-reading activities.
- The Contractor shall enter into a Memorandum of Understanding with the Goodfellow Air Force Base Fire Department for fire protection of all facilities included in the purchase of the utility. The Contractor shall abide by Goodfellow AFB fire protection requirements. The Contractor shall maintain the fire alarm system for all facilities included in the purchase of the utility. The Contractor shall permit Fire Department personnel access to their facilities to perform fire inspections and emergency response.
- IAW Paragraph C.9.8, *Exercises and Crisis Situations Requiring Utility Support*, the Contractor shall provide support as directed by The Goodfellow Air Force Base Civil Engineer Control Center for exercises and crisis situations.
- The Contractor shall provide and maintain electrical distribution system equipment to maintain as a minimum the power quality, efficiencies and power factor that are presently experienced in the system. This is not intended to control the power quality, efficiencies and power factor characteristics beyond the points of demarcation, but to assure that the contractor provide equipment or operate the system such that the cost of the commodity or the equipment on the Base are adversely effected.
- The Contractor shall cooperate and coordinate the operation of the tie-breaker in the main switchgear with the serving utility. This coordination is required to prevent the adverse power flow through the switchgear between the two electrical sources of power. Operation of the tie-breaker is presently controlled by the utility with the presents of a locking device on the breaker to prevent in advertent operation of the breaker.

J1.4 Current Service Arrangement

Currently, American Electric Power (AEP) supplies electric service to Goodfellow AFB. Electric power annual consumption at Goodfellow AFB is about 43.9 million kilowatt-hours (kWh). The maximum monthly consumption for FY2003 was approximately 4.73 million kWh, occurring in July. The lowest monthly consumption for the year was approximately 2.91 million kWh, occurring in February. The peak electrical demand for the system is approximately 8.5 megawatts (MW), occurring in July.

As noted in Section J1.1, key projects planned for Goodfellow AFB may increase the total square footage of buildings on Base by nearly 8 percent.

J1.5 Secondary Metering

J1.5.1 Existing Secondary Meters

The Base will retain ownership all existing watt-hour meters and they will continue to perform meter reading activities. The Contractor will not provide meter readings for any secondary meters IAW Paragraph C.3.3.

TABLE 5
Existing Secondary Meters
Electric Distribution System Goodfellow AFB

Meter Location	Meter Description
No existing secondary meters are to be transferred with the electrical distribution system.	

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.3.3 and J1.6 below.

TABLE 6
New Secondary Meters
Electric Distribution System Goodfellow AFB

Meter Location	Meter Description
No new secondary meters are required.	

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:

Name: Contracting Officer

Address: 17 CES 460 E. Kearney, Goodfellow AFB, Tx 76908

Phone number: 325-654-3440

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:

Name: Contracting Officer

Address: 17 CES 460 E. Kearney, Goodfellow AFB, Tx 76908

Phone number: 325-654-3440

3. 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:

Name: Contracting Officer

Address: 17 CES 460 E. Kearney, Goodfellow AFB, Tx 76908

Phone number: 325-654-3440

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 Goodfellow AFB boundaries.

J1.9 Off-Installation Sites

No off-installation sites are included in the sale of the Goodfellow AFB electric distribution system.

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 Goodfellow AFB

Location	Description
	The Government does not require any connection or disconnections during the transition period.

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 Goodfellow AFB 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 Goodfellow AFB

Project Location	Project Description
	JCGU97-1024 Loop Electric \$747K
	JCGU97-1052 Relocate overhead to underground \$236K
	JCGU97-1053 Relocate overhead to underground \$60K

J1.12 Right of Access to the Utility System

J1.12.1 Map of Premises

Exhibit A map or maps from the Base Comprehensive Plan or other drawings show the known locations of the utility system and are available at the Base Civil Engineering Office. Portions of the utility system may not be fully shown on the map or maps. Any such failure to show the complete utility system on the map or maps shall not be interpreted as that part of the utility system being outside the Premises. The Premises are co-extensive with the entire

linear extent of the utility system sold to Grantee, whether or not precisely shown on the map or maps.

Maps are available, by request to the PCO, in Microstation format on CD. The following files are included on the CD entitled “Goodfellow Air Force Base Electric Utility System.”

- goodfellow base map.dgn, Utility System Drawings (G-tabs)
- goodfellow electr.dgn, Electrical System Single-Line Diagram

J1.12.2 Description of Premises

J1.12.2.1 General Description of the Utility System, Lateral Extent of the Right-of-Way, and Points of Demarcation:

UTILITY SYSTEM DESCRIPTION:

The utility system may be composed of, without limitation, substations with outdoor switchgear, overhead and underground conductors, utility poles, ducts, raceways, manholes, pad-mount and pole-mount transformers, transformer pads, meters, and instrumentation related to metering of electricity delivered to end users on the Installation.

LATERAL EXTENT OF UTILITY SYSTEM RIGHT-OF-WAY:

Where the utility system is installed above ground, 26-feet-wide, extending 13 feet on each side of the utility system, as installed.

Where the utility system is installed on or under the ground, 26-feet-wide, extending 13 feet on each side of the utility system, as installed.

UTILITY SYSTEM POINTS OF DEMARCATION:

The point of demarcation is defined as the point on the utility system where ownership changes from the utility system owner to the facility owner. This point of demarcation will be at the point the utility enters a facility or the load side of a transformer supplying a building, facility, or lighting. **Table 9** below identifies the type and general location of the point of demarcation with respect to the facility for each scenario.

TABLE 9
Points of Demarcation
Electric Distribution System Goodfellow AFB

Point of Demarcation (POD)	Applicable Scenario	Sketch
----------------------------	---------------------	--------

TABLE 9
Points of Demarcation
Electric Distribution System Goodfellow AFB

Point of Demarcation (POD)	Applicable Scenario	Sketch
POD is the transformer secondary terminal spade.	Pad Mounted Transformer located outside of structure with underground service to the structure and no meter exists.	
POD is the transformer secondary terminal spade.	Three Phase CT metered service. Note: The meter, can, CTs, and associated wires are owned and maintained by the electric utility owner.	
POD is secondary terminal of the transformer inside of the structure.	Transformer located inside of structure and an isolation device is in place with or without a meter. Note: Utility owner must be granted 24-hour access to transformer room.	
POD is secondary terminal of the transformer inside of the structure.	Transformer located inside of structure with no isolation device in place. Note: Utility Owner must be granted 24-hour access to transformer room.	
POD is where the overhead conductor is connected to the secondary terminals of the transformer.	Electric meter is connected to the exterior of the building on an overhead secondary line.	

TABLE 9
Points of Demarcation
Electric Distribution System Goodfellow AFB

Point of Demarcation (POD)	Applicable Scenario	Sketch
<p>POD is at the transformer secondary terminal spade.</p> <p>Note: If an electric meter is present, or is to be installed, the owner of the electric distribution system on the installation is the owner and maintainer of the electric meter and the can. The POD for the meter is at the water utility owner's conductors to the electric utility owner's conductors. This meter POD applies regardless of the location of the electric meters and transformers.</p>	<p>Electric power is provided to a water facility via an underground service connection. This configuration could be found at facilities dedicated to the water utility such as a water well, pump station, or water tower.</p>	<p>None</p>
<p>POD is at the transformer secondary terminal spade feeding a treatment plant.</p> <p>Note: If an electric meter is present, or is to be installed, the owner of the electric distribution system on the installation is the owner and maintainer of the electric meter and the can. The POD for the meter is at the wastewater utility owner's conductors to the electric utility owner's conductors. This meter POD applies regardless of the location of the electric meters and transformers.</p>	<p>Electric power is provided to a wastewater facility via an underground service connection. This configuration could be found at facilities dedicated to the wastewater utility such as a lift station or wastewater treatment plant.</p>	<p>None</p>

UNIQUE POINTS OF DEMARCATION:

The following **Table 10** lists anomalous points of demarcation that do not fit any of the above scenarios.

TABLE 10
Unique Points of Demarcation
Electric Distribution System Goodfellow AFB

Building No.	Point of Demarcation (POD) Description
Base main switch station	The POD between American Electric Power and the base electrical system is the electrical termination spades on the electrical riser located on the roof of the electrical switch station for both the East and West feeds to the Base.

J1.12.2.2 Description of Restricted Access Areas:

TABLE 11
 Restricted Access Areas
Electric Distribution System Goodfellow AFB

Description	Facility #	State Coordinates	Other Information
None			

J1.12.3 Environmental Baseline Survey

The Air Force has determined that it is not required to conduct an EBS in regard to the sale of this utility system.