UMATILLA ELECTRIC COOPERATIVE

August 3,2009

Bill Dana
Dana Engineering
4000 S. Irby Street
Kennewick, WA 99337-2455

Dear Mr. Dana,

The purpose of the enclosed reports were to provide engineering estimates of the condition of the Army owned electric distribution *system* should the Army ask UEC to provide operations and maintenance services for this system and what UEC believed the value of the distribution *system* to be. The premise of these discussions was while the Depot remained under Army control and for Army owned distribution. As you may know military facilities can chose to provide their own electric power supply on the confines of their facility. When the facilities are no longer federally controlled, then in Oregon, which has certified exclusive service areas for all electric utilities, the utility, in whose service area the former military facility resides, provides the electric service and utility infrastructure. In the case of the Umatilla Army Depot, the utility providing electrical service is Umatilla Electric Cooperative (UEC).

When the Chemical Demilitarization infrastructure was built, Umatilla Electric provided the 115 KV transmission lines, the *step* down substation and electric distribution facilities. UEC retains title to *this* infrastructure. The Demilitarization infrastructure was not included in the report or update since they are already owned and operated by Umatilla Electric. A *2009* inventory is probably worthwhile. If we *can* be of further assistance please contact us.

Sincerely,

Steve

M. Steven Eldrige
General Manager and CEO

MSE/trs
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cc: Bill Hansell
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U.S. ARMY CORPS OF ENGINEER'S
UMATILLA CHEMICAL DEPOT
ELECTRICAL DISTRIBUTION SYSTEM
VALUATION STUDY
For
UMATILLA ELECTRIC COOPERATIVE, INC.

FEBRUARY, 1999

CHEMICAL DEPOT VALUATION

UMATILLA ELECTRIC COOPERATIVE, INC.

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CHEMICAL DEPOT VALUATION

UMATILLA ELECTRIC COOPERATIVE, INC.

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I. INTRODUCTION

D. Hittle & Associates, Inc., Engineers and Consultants, (DHA) was retained by Umatilla Electric Cooperative, Inc. (UEC) to provide an engineering valuation of the U.S. Army Corps of Engineers Umatilla Chemical Depot (Depot) electric distribution system. The Depot expressed an interest in selling the electrical distribution system and contacted UEC to determine their interest in the property. This valuation is the first step in the negotiation process.

The purpose of this study is to develop a fair value of the electrical distribution system. If the system is purchased by UEC, the operations and maintenance of the system will be taken over by UEC, relieving Depot personnel of this duty. Several alternative methods were used to develop the "fair value" of the system. No book value is available from the Depot for comparison. This study includes the following valuation methods:

- Replacement Cost Less Depreciation
- Capital Recovery Method
- Annual Cost Method

DHA inspected and inventoried the Depot electrical distribution system pole by pole to determine its condition and functional utility. In addition, we interviewed representatives of the Depot concerning the condition and planned use of the facilities. UEC personnel were also consulted for their plans for the Depot distribution system. A review of records indicate that transformers and equipment with greater than 50 parts per million (PPM) of PCB were replaced in the electrical system in 1989 (see Appendix 3). There is a risk that the standard of 50 PPM of PCB could be lowered, but the increased risk of the Depot equipment is no greater than that of UEC's equipment. This study does not attempt to value land, land rights, access roads or other land improvements, which are associated with the various distribution facilities.

II. SUMMARY & RECOMMENDATIONS

The Depot's site was constructed in the 1940s and the electrical distribution system was originally built at that time. In the early 1990s, the system serving critical areas was rebuilt. The remaining original system has had little maintenance but is in generally good working order. The poles are weathered but a pole recently removed and examined proved to still be sound. The electrical distribution system was inventoried in three distinct areas: The East Feeder, the underground system feeding the Administration Area, and the West Feeder. Much of the West Feeder was rebuilt in the 1990s. The original 1940s system and the underground cable installed in the 1970s is estimated to have five years of remaining life. At that time it is expected that the remaining original system and underground system will need a complete rebuild.

The Depot electrical distribution system has numerous safety violations that should be eliminated immediately after purchase. The cost of correcting these violations has been subtracted from the value of the system in each method of system valuation used. If UEC takes ownership of the Depot electrical distribution system, UEC will have a cash outflow of approximately $119,059 to repair safety violations. In addition, assuming a remaining life expectancy of five years for the original 1940s overhead system and 1970s underground system, both systems will need to be rebuilt. This will cost approximately $947,565 (in 1999 dollars) for the rebuild in the year 2004. The above figure includes $76,890 for the rebuild of the underground system, $546,885 for the rebuild of the West Feeder, and $323,790 for the rebuild of the East Feeder (see Appendices 7, 11 and 12).

A major justification for purchasing the Depot electrical distribution system is to gain the right to serve the Depot service territory and future load development. A significant risk of its purchase is the uncertainty of the energy usage and the associated revenue stream. Another risk is the assumption that maintenance of the system will approximate UEC's system average cost per line mile. An increase in revenue from development of the buildings on the western edge of the Depot site is possible, although the development of the buildings may be postponed until after the nerve gas incineration is complete.

If UEC chooses not to purchase the Depot electrical distribution system, the opportunity to sign a long-term service agreement still exists. Signing a long-term agreement would provide both parties with the ability to plan future expenditures. UEC could offer to provide the Depot with a maintenance agreement or facilitate an arrangement with a local contractor. This would relieve the Depot of the personnel and equipment necessary to maintain the system. Maintenance planning and safety upgrades should also be included in the maintenance agreement.

Three methods of estimating the value of the Depot electrical distribution system were computed with values ranging from $134,870 to $299,588 (see Table 4 for details). Immediately after purchasing the system, approximately $119,057 must be invested to upgrade safety violations. Also, after five years approximately $947,565 (1999 dollars)

must be invested for the rebuild of aging system. Because of the necessary upgrade expenditures required, we recommend that UEC purchase the Depot system for a very low nominal amount, such as a $1 or $100. This would provide a favorable outcome for both the Depot and UEC. UEC would obtain the Depot site service territory and the right to serve existing and future load additions. The Depot would be relieved of the burden of distribution system maintenance and would receive upgrades to the electrical distribution system over time, resulting in improved safety and reliability.

III. DESCRIPTION AND CONDITION OF EA

This valuation is based on information provided by the Depot, distribution maps, transformer lists, and field inspection. The distribution maps, while being very helpful, have not been kept up to date. The exact age of system components is not available in all cases and is therefore based on information provided and professional engineering judgment. Since a comprehensive system inventory is not available, engineering judgment was used when necessary.

The Depot distribution system begins at the primary metering pole near the main entrance to the Depot. From this point the line enters the Depot switchyard where two breakers split the line into the East and West Feeder. The East Feeder also serves the underground electrical distribution system serving the Administration Area. See the enclosed system distribution maps for more detailed information.

The East Feeder serves the eastern half of the Depot's estimated 20,000 acres. Protection is provided by an obsolete 1970s vintage Westinghouse breaker. The distribution line is 8.9 miles long, and consists of mostly three phase No. 4 copper conductor. The line is of 1940s vintage that has had little maintenance. An abandoned line of approximately 69 distribution poles and 11 transmission poles is also located on the eastern half of the Depot. The poles can be seen from the nearby freeway and should be removed in order to clean up the visual appearance and to prevent safety problems arising from the line's deterioration. The majority of the feeder is 58 years old. The overhead line is estimated to need replacement within the next five years.

The East Feeder is also connected to the 4.16/2.4 kV underground system that feeds the Administration Area. The underground cable is 1970s vintage cable. The 12.5/7.2 kV overhead system feeds underground cable into Building 14, a concrete building containing transformers that step down the voltage to 4.16/2.4 kV. The 4.16 kV system feeds the underground cable system that is approximately 1.3 miles long and serves the pad mounted and rack mounted transformers in the Administration Area. There is also a small amount of overhead 4.16 kV system. The electrical equipment in Building 14 was upgraded in 1990, however, because the equipment is fed by open bus inside a concrete building, safety considerations dictate that the building not be entered unless the power is de-energized. The Depot staff indicates that few faults have occurred on the underground cable, however, 1970s vintage cable normally has a life expectancy of less than 20 years. The underground system is *estimated* to need replacement within the next five years.

The *West* Feeder begins at the switchyard and travels west along the railroad tracks and freeway. The overall feeder length is 17.7 miles. The line from the switching station to K-Block was rebuilt in 1992; the line beyond K-Block toward the Irrigon entrance gate is still the original 1940s system. The West Feeder serving the large buildings on the western edge of the Depot is also part of the original system. The remaining life expectancy of the original 1940s system is five years and is estimated to need

replacement within five years. The expected life of the line rebuilt in the 1990s is approximately 33 years. The weighted average age of the feeder is 15 years with a remaining life expectancy of 25 years.

IV. CONDITION OF THE SYSTEM

The entire Depot electrical system was inspected and inventoried pole by pole, however, it was necessary to view poles inside secure areas from outside the fence. The inventories (see Appendices 5 and 6) include the pole height and class, pole top units, transformers, guys, anchors and other items. Standard Rural Utilities Service units were used for the inventory and UEC's actual construction costs were used to calculate the system's replacement value. (See the enclosed Depot distribution maps for more details.) The average age of the system is 25 years based on system records and field inspection (see Appendix 2 - Average Age Calculation for more details).

The Depot's electrical distribution system, originally built in the 1940s, had line to critical areas rebuilt in the early 1990s. The original system has had little maintenance but is in generally good working order. The poles are weathered but a pole recently removed proved to still be sound. The 1940s vintage system is estimated to have five years of remaining life.

The Depot electrical distribution system has numerous safety violations that should be eliminated immediately after purchase. The cost of correcting these violations has been subtracted from the value of the system in each method of system valuation used. The most serious of the violations is the placement of overhead transformers on concrete pads on the ground. About 10 occurrences of this practice exist on the Depot system (see Appendix I for pictures of typical Depot electrical system construction). Open primary voltage comes within approximately 2.5 feet of the ground. Minimum energized conductor height within the confines of a substation fence is 9 feet. These installations are also behind chain-link fences but the fence is too close to the installation to provide adequate protection to personnel. Funds are included for the cost of pole mounting the transformers. Funds are also allocated for the removal of de-energized line no longer in use. Elimination of line no longer serving load will improve safety and reliability by having less line miles in which outages can occur.

V. REVENUES AND RATES

Table 1 below shows the Depot's present average energy rate. Because 1998 usage has temporarily increased due to construction of the gas incinerator, this table incorporates the Depot's historical usage from October 1996 through September 1997. During that period, the Depot used 3,489,722 kWh. Because UEC lowered its rates significantly in February 1997 and again in March 1998, this table uses UEC's present rates. The Depot is billed under UEC's standard Large Commercial rate schedule and pays an average rate of $0.0347 per kWh. UEC's rates are a combination of four charges. The Customer Charge and Availability Charge are relatively fixed and are intended to recover part of UEC's non-power costs. KWh Charge and Demand Charge vary with power usage and are intended to recover UEC's wholesale power costs and the remainder of UEC's non-power costs and margins. The Depot's average rate per kWh is less than UEC's average Large Commercial customer because the entire Depot is primary metered at one location and it has a higher than average monthly load factor. Under UEC's rate structure, a concentrated steady load pays a lower average rate per kWh because of the resulting lower demand charge component on the bill.

TABLE 1
Revenue Comparison for 3,489,722 kWh
Average Rate per kWh

UEC Rates	$/kWh	Revenue	Power Cost	Gross Margins
Industrial	$0.0329	$114,812	$77,925	$36,887
Depot	0.0347	121,093	77,925	43,168
Lg. Commercial	0.0438	152,850	77,925	74,925
Sm. Commercial	0.0483	168,554	77,925	90,629
Residential	0.0495	172,741	77,825	94,816

If the system is purchased by UEC, it is recommended that a plan of service study be completed in order to identify and correct safety violations, upgrade system reliability, and to remove portions of the system no longer needed. We have included the cost of removing abandoned and de-energized line no longer serving load within the funds for correction of safety violations.

As shown in Table 1, the Depot account contributes about $43,168 per year in Gross Margins. This is the revenue available to fund the Depot account's share of UEC's overhead costs such as Operations, Maintenance, Taxes, Debt Service, Administration and Margins.

After the purchase, UEC's operations and maintenance expenses will increase, so it is logical to assume that UEC's average rate to the Depot would need to increase. If the Depot continues to be primary metered, one option is to change from its present rate (Large Commercial) to the Small Commercial rate. The logic is that UEC is no longer serving one large load, but many small loads. As Table 1 shows, the Small Commercial rate is $0.0045 per kWh higher than the Large Commercial rate. Assuming that the demand charge stays fairly constant, that rate change would increase the Depot's bill by $15,703 per year. UEC benefits from primary metering in that there is much less meter reading and billing expense being paid for distribution line losses. UEC also avoids the expense and maintenance of individual meters. The Depot benefits in having much better diversity an demand and availability charges, having only one meter's customer charge.

Primary metering will probably need to continue unless the Depot makes a large investment in meters and meter bases. However, it should be pointed out that primary metering does not work well when there is more than one customer taking delivery of power. If privatization of Depot property occurs, the western area with the large buildings is anticipated for development. We do recommend that when businesses develop in the large buildings on the west end of the Depot, they be individually metered. UEC can build a moderate amount of line and serve those buildings from a different source. In the future, if an economical method of individually metering a particular service is identified, we recommend doing so. Separate metering helps identify potential overloads and would also help the Depot identify high usage facilities.

All analysis presented assume that the Depot will remain primary metered. If individual meters are to be installed, the cost of installation is to be paid for by the Depot. Additional analysis will be required if the Depot requires conversion to individual meters.

The Cooperative's gross margins from the Depot(at today's rates) would be $43,168 as shown on Table 1. This is the revenue available to fund the expenses and margins of UEC from the Depot This level of contribution would need to be maintained after the purchase of the system in order for the Depot electrical distribution system to avoid being subsidized by other UEC consumers.

VI. VALUATION OF FACILITIES

The scope of this study is limited to the valuation of the electrical facilities at the Depot. We have not considered the land, land rights, roads or other access investments in our analysis. Three methods were used to estimate the value of the electrical distribution system: Replacement Cost Less Depreciation Method, Capital Recovery Method, and Annual Cost Method.

A REPLACEMENT COST LESS DEPRECIATION METHOD

The entire Depot electrical system was inventoried pole by pole for the Replacement Cost Less Depreciation Method. The poles, pole top units and other equipment were tabulated. Umatilla Electric Cooperative provided standard costs of new poles, pole top units and other equipment. From the list of poles and equipment, a replacement value was obtained. The replacement value was then depreciated according to the age of the pole. Normally, for accounting purposes, electrical systems are estimated to have a 40-year life expectancy. Since the remaining original system is already 58 years old and estimated to have a remaining life of five years, an expected life of 63 years was used for the original electrical system. The system built in the 1990s has been assigned an expected life of 40 years. The 4.16 kV underground system has been assigned an expected remaining life of five years.

The system was inventoried in three parts: The East Feeder, the West Feeder and Administrative Area underground electric systems. Subtracted from the depreciated value of these systems was the estimated amount of funds necessary to correct safety violations. The value of inventoried spare transformers was added in order to obtain a total value for the system. The following table summarizes the Replacement Value, Depreciation, and Depreciated Value of each part of the system.

Table 2
Replacement Cost Less Depredation

Description	Replacement Value	Accumulated Depreciation	Depreciated Value
East Feeder	$288,709	$104,699	$ 104,010
West Feeder	$654,408	$412,784	241,624
Administration Area	$76,890	$36,208	40,682
Correction of Safety Violations	N/A	N/A	(119,059)
Spare Transformers	32,330	N/A	32,330
Total	$1,052,337	$633,691	$ 299,588

The estimated Replacement Cost Less Depreciation value of the Depot's electrical distribution system is $299,588. Amortization at 7.0 percent over 15 years (system

average remaining life) results in yearly payments of $32,892. Refer to the Appendices 5 through 9 for the tables used to develop the above figures.

It should be noted that even if the Depot electrical distribution system was sold to UEC for one dollar ($1), the cash flow for the first year would be negative. This is because correction of safety violations will cost approximately $119,059. If UEC does buy the electrical distribution system, they should negotiate the elimination of capital credits to the Depot account in order to make up for the negative cash flow. This would result in approximately $17,000 per year at historical usage.

B. CAPITAL RECOVERY METHOD

The Capital Recovery Method derives the present worth of an investment based on annual income, interest rate, and the number of years the income will be received. Based on the October 1996 to September 1997 kWh sales and present rates:

Table 3
Annual Revenue from Umatilla Army Depot

Date	Revenue	kWh	Dollars/kWh	Power Cost
Oct 96	$ 8,130	208,800		
Nov 96	9,484	255,000		
Dec 96	13,911	403,200		
Jan 97	13,297	356,400		
Feb 97	11,239	302,400		
Mar 97	10,533	286,200		
Apr 97	8,782	231,000		
May 97	6,879	243,000		
Jun 97	7,267	244,131		
Jul 97	8,663	325,800		
Aug 97	11,343	332,517		
Sep 97	11,529	301,274		
[redacted]	$ 121,057	3,489,722	0.02233	$ 77,925
Less power cost	77,925			
	$ 43,168			

The annual contribution to UEC overhead and margins is $43,168. Given that the expected remaining life of the electrical system is IS years (see Average Age Calculation in Appendix 2) and UEC's cost of capital to be 7.0 percent, a cash flow analysis will estimate the value of the income stream. If UEC were to take the annual contribution margin of the Depot account and pay for the system over 10 to 15 years, the value of the system would be (from standard interest tables):

For a 10 year payback: (A/P, 7.0%, 10 yr) –0.14238

P = $43,168/0.14238 = $303,189

For a 15 year pay —— (A/P, 7.0%, I5 yr) = 0.10586

P = $43,168/0.10979 = $393,187

That is, a $43,168 annual income starting one year from today and continuing for 10 years at 7.0 percent interest has a present value of $303,189. Similarly, $43,168 annual income starting one year from today and continuing for 15 years at 7.0 percent interest has a present value of $393,187. This is the present value of the account as an annual cash flow to UEC.

For UEC to take over the system, safety violations must be corrected. Subtracting $119,059 (see Appendix 8) from the above results in $184,130 and $274,128 for the 10 and 15 year investment respectively. A purchase price of the system of $184,130 amortized at 7.0 percent over 10 years results in yearly payments of $26,216. A purchase price of $274,128 amortized at 7.0 percent over 15 years results in yearly payments of $30,097.

C. ANNUAL COST METHOD

The Annual Cost Method estimates the value of the system based on the annual cost per year to maintain the system. Umatilla Electric Cooperative indicates that its annual cost to own and operate the distribution system is 17 percent of the value of the distribution system. Dividing the annual cash flow by 17 percent would result in the value of the distribution system. Using the $43,168 annual cash flow developed in d o n B, $43,168/0.17 = $253,929 and subtracting the $119,059 to repair safety violations would result in a system value of $134,870.

D. COMPARISON OF METHODS

Table 4 compares the three methods used in this study. All three methods are based on kilowatt-hours sold for October 1996 through September 1997 of 3,489,722 kWh at present (1999) rates. The following table compares the three financial methods used and the resulting estimated system value.

Table 4
Estimated Value by Method
Umatilla Amy **Depot**

	Estimated Value
Replacement Less Depreciation	$ 299,588
Capital Recovery	
10 Year pa ——	$184,130
IS Year Payback	$274,128
Annual Cost	$134,870

The table above shows that the estimated value of the Umatilla Army Depot electrical distribution system to be between $134,870 and $299,588. It should be noted that cash flow the first year will be negative because of the $119,059 expense required to upgrade safety violations. In addition, it is expected that during the first five years a cash outflow of $947,565 will be required to rebuild the original 1940s vintage line and the underground system.

VI. CONCLUSIONS

A major justification for purchasing the Depot electrical distribution system is to gain the right to serve the Depot service territory and future load development.

The main weakness of purchasing the Depot electrical distribution system is the uncertainty of the energy usage and the associated revenue stream. Another risk is the assumption that maintenance of the system will near UEC's system average cost per line mile. The fact that the Depot site has no trees on it will eliminate the need for tree trimming. Also, the close proximity to the UEC headquarters will reduce the amount of travel time necessary for maintenance, when compared to the "average" line on UEC's system. Little maintenance has been done on the system's original 1940s vintage line. The risk of a catastrophic failure of the original 1940s vintage line exists for an extreme ice or wind storm or fire. This would force UEC to rebuild the system before the anticipated five year remaining life for the original 1940s system. The cost to repair safety violations may also be greater than what was estimated. The risk of the underground cable failing before the anticipated five year remaining life could also cause an escalation of maintenance costs. Unforeseen costs may also reduce margins of the Depot account. An increase in revenue from development of the buildings on the western edge of the Depot site is possible, although the development of the buildings on the western edge of the Depot may be postponed until after nerve gas incineration is complete.

If UEC does not purchase the depot electrical distribution system, the opportunity to sign a long-term service agreement still exists. Signing a long-term agreement would provide both parties with the ability to plan future expenditures. UEC could offer to provide the Depot with a maintenance agreement or facilitate an arrangement with a local contractor. This would relieve the Depot of the personnel and equipment necessary to maintain the system. Maintenance planning and safety upgrades should also be included in the maintenance agreement.

DHITTLE & ASSOCIATES, INC.
Engineers and Consultants

June 13, 2006

[redacted]

Mr. Steve Eldrige, General Ma —
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U.S. *ARMY* CORPS OF ENGINEER'S UMATILLA CHEMICAL DEPOT
ELECTRICAL DISTRIBUTION SYSTEM VALUATION STUDY UPDATE

Dear Steve,

This letter is to provide an update of our U.S. Army *Corps* of Engineer's Umatilla Chemical Depot Electrical Distribution System Valuation Study that we completed in February of 1999. Sines that time, there have been several improvements made to the Chemical Depot Electrical Distribution System. Transformers have been replaced, the Administration Area underground has been replaced, overhead distribution sectionalizing switches have been added and various overhead and underground line extensions have been completed. The major improvements are summarized below:

Conversion of Administrative Area. Over $1 million dollars has been spent on upgrading the Administrative Area from the existing 41812.4 kV system to a 12.47/7.2 kV system. All the existing underground conductors have been replaced back to the substation breakers, new pad mounted transformers have been installed and the existing transformer building has been abandoned. In addition, an emergency diesel generator has been installed as a back up power source for select facilities.

Transformer Replacements. Several existing overhead transformers have been replaced with new padmount transformers. New underground feeds have been added to serve the padmount transformers. New and existing wells are now served underground utilizing padmount transformers.

Sectionalizing Switches. Three new gang-operated air break switches have been installed to allow lor sectionalizing of the west feeder.

Line Extensions. Several single and three phase overhead and underground line extensions have been installed to serve new loads.

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Based on the above described improvements there has been approximately $1.4 million dollars invested into the Chemical Depot Electrical Distribution System over the past 6 years ($1.1M for the Administrative Area, $200K for underground replacements and $100K for line extensions and switches.

However, based on updated construction costs there is an estimated $1.38 million dollars worth of improvements that will need to be completed in the near future to remove safety violations and replace the aging poles throughout the distribution system ($150K for safety violations, $442K for east feeder replacements and $788K for west feeder replacements).

Therefore, our recommendation would remain that Umatilla Electric Cooperative (UEC) purchase the Chemical Depot system for a nominal amount. This will provide a favorable outcome for both the Depot and UEC. UEC would obtain the Depot site service territory and the right to serve existing and future load development. The Depot would be relieved of the burden of any future distribution system maintenance and would receive upgrades over time that would result in an improved and more reliable system.

We hope this provides the necessary information for both UEC and the Depot to negotiate and execute the sale of the Chemical Depot Electrical Distribution System. As with our original valuation study, it is assumed that the Depot system will continue to be primary metered. If individual metering will be installed and utilized then that will need to be addressed separately.

Sincerely,

D. Hittle & Associates, Inc.

Randel G. Valerio, PE
Sr. Engineer