Appendix K

Yolo Annexation Feasibility Study Staff's Assessment and Recommendations, Final Report, Sacramento Municipal Utility District, 2005

(Provided on CD Only)

Yolo Annexation Feasibility Study
Staff's Assessment and Recommendations

Final Report

April 18, 2005

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Distribution Services Design Resource Center
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EXECUTIVE SUMMARY OVERVIEW

In January 2005, R.W. Beck released its SMUD Annexation Feasibility Study that evaluated the economic feasibility of annexing the cities of West Sacramento, Davis, and Woodland along with adjacent portions of Yolo County into SMUD's electric service area. The communities currently receive electric service from Pacific Gas & Electric Company (PG&E) and have requested annexation to SMUD. R.W. Beck analyzed numerous scenarios, the majority of which found that annexation would produce long-term savings relative to PG&E rates.

This report by SMUD staff evaluates the R.W. Beck study and augments the work with additional analysis of critical economic and operational factors to ensure current SMUD customers do not subsidize annexation. The analysis also studied potential benefits of the proposed annexation that could accrue to current SMUD customers. Based on this review and analysis, staff has concluded that annexation of West Sacramento, Davis, Woodland and unincorporated areas between the three cities would be technically and economically feasible and that it offers benefits for prospective customers in those areas as well as for current SMUD customers.

SMUD staff findings include:

1. R.W. Beck's assumptions and analysis are reasonable, given little cooperation from PG&E.

2. SMUD staff considered only annexation of all three cities and adjacent portions of Yolo County because it represents the most desirable customer mix for SMUD, offers the easiest means of separating from PG&E's transmission system, and is the most financially viable overall. Other configurations discussed in the R.W. Beck report have technical limitations or do not generate as many benefits.

3. Savings are expected to be approximately 8% on a net present value basis ($180 million) over the 20-year study horizon. Allocation of these savings between existing customers, new customers, or between customer classes is not yet completed.

4. Initial annual benefits are relatively low. However, with the benefits of municipal ownership, the economic value of annexation increases over time as cash flow from new customers is reinvested into system assets instead of being paid out to shareholders.

5. While Yolo customers' power costs would be higher than current SMUD customers' power costs, economies of scale in SMUD's operational costs and Yolo's lower debt service costs per customer more than offset the higher power cost. For study purposes, Yolo customers are not assumed to receive any benefits from SMUD's existing hydroelectric or other low cost energy resources.

6. Under staff's assumptions, Yolo customers provide a slightly higher cash flow per kWh of sales than the current SMUD customers. Under these conditions, existing SMUD customers are likely to have both tangible and intangible benefits due to the Yolo annexation.

7. Immediate interconnection of the SMUD electric system to the annexation area is preferable to relying temporarily on the California Independent System Operator. Interconnection of Yolo loads also improves utilization of SMUD's existing transmission assets.

8. SMUD staff is continuing to study how the District could structure a Yolo rate surcharge in which benefits are spread to the maximum number of customers and risks are reasonably allocated between current customers and potential customers in the annexation area.

Based on these findings SMUD staff recommends continuing with the annexation process with a filing at the Sacramento County Local Agency Formation Commission (LAFCO). The remainder of this report offers more detail on the technical and economic evaluation conducted by SMUD.

TECHNICAL EVALUATION OVERVIEW

SMUD staff reviewed the technical aspects of the R.W. Beck study to determine the validity and feasibility of serving the annexation areas. The R.W. Beck study contains a comprehensive assessment of existing transmission and distribution facilities and inventories and is well documented for further evaluation. District staff validated R.W. Beck's technical methodology and in some cases made adjustments based on SMUD's experience, information available from public sources, and SMUD's own approach to serving the annexed area loads. District staff believes that annexation of the areas addressed in the R.W. Beck study is technically feasible and would result in better utilization of SMUD's existing transmission system.

Transmission Options

R.W. Beck studied four annexation scenarios that addressed various load and jurisdictional options and transmission arrangements. R.W. Beck's methodology and assumptions in developing the four cases is well documented and extensive efforts are evident by R.W. Beck to identify and include as much inventory as possible despite lack of cooperation from PG&E. SMUD staff reviewed R.W. Beck's options and conducted numerous load flow, system protection and system studies to validate and determine the technical feasibility of R.W. Beck's approach and to evaluate potential alternatives. While all of R.W. Beck's options are technically feasible, SMUD staff further studied only the option of annexing all three cities along with portions of Yolo County. This option is the system configuration that would be most cost effective, lowers the cost of initial transmission interconnection, offers the greatest use of existing and new transmission facilities, is the most technically feasible, and has the most support from the jurisdictions.

SMUD's analysis determined that reconfiguration of existing PG&E and SMUD transmission lines would be the most cost effective and technically viable method of interconnecting certain Yolo load with the existing SMUD 115kV transmission system. Specifically, the Brighton-Davis line would be converted to Hedge-Davis; Rio Oso-West Sacramento and Brighton-West Sacramento would be re-terminated as North City-West Sacramento and Hurley-West Sacramento respectively. In addition, SMUD staff determined that a new double circuit line (approximately 18 miles) from Elverta Substation to existing Woodland Substation would be required. Staff has evaluated the technical and real estate rights-of-way issues involved in building the new line and believes the construction of the new line would take approximately two to three years including environmental and other permitting requirements. New construction and reconfiguration of the existing transmission system would not require a significant lead-time and can be complete by 2008. The cost of reconfiguring existing lines and constructing the new double circuit line to Woodland would be less costly than the transmission alternatives identified in the R.W. Beck report.

The SMUD transmission configuration as proposed leverages existing capacity and infrastructure as well as minimizes stranding of PG&E transmission facilities. For example, R.W. Beck proposed an additional 200 MVA 230/115 kV transformer at Hurley Substation. However, SMUD staff determined that the new transformer is not needed based on existing capacity and planned changes on the 230/115 kV system, which include a relocation of a 230/115/69 kV transformer from Elk Grove Substation to Elverta Substation in 2005-2006. The configuration under the SMUD scenario enables PG&E to utilize and continue to serve its adjoining loads with the same or improved reliability. SMUD studies also demonstrated potential benefits to PG&E's transmission system as a result of reduced capital costs for transmission improvements associated with regional loads and Rio Oso and Vaca-Dixon sub-stations. It should be noted that the PG&E transmission system in the annexed area is multi-terminal that results in lower customer reliability as compared to two terminal transmission lines practiced by the District. With multi-terminal lines distribution customers are subjected to transmission outages and power is more problematic to re-route in case of equipment or transmission line failure.

At present SMUD does not have any 115kV interconnection with PG&E and this is also the case under the SMUD transmission scenario. Transmission studies indicate reconfiguration of the transmission system should have no adverse impact on the PG&E or SMUD transmission systems. A future interconnection with PG&E on the 115kV system is technically feasible and may serve to enhance regional transmission capabilities and reliability for both SMUD and PG&E.

Although R.W. Beck did not address regional and local load serving capability, staff studies determined that Cosumnes Power Plant and Roseville Energy Park will need to be on line prior to annexation to comply with regional load serving and Control Area operational requirements. A future 230kV transmission line to Western Area Power Administration's (WAPA) O'Banion Substation from Natomas/Elverta Substation will further enhance the SMUD and regional system performance. Staff also confirmed R.W. Beck's assessment that local transmission improvements such as line re-conductoring and breaker replacements may be required to address contingencies as a result of load growth and deficient PG&E facilities in the area.

RW Beck assessed the use of the California Independent System Operator (CAISO) as the Transmission and Control Area service provider for the annexation area. SMUD staff does not recommend this approach as changing tariffs, regulations, and reliability provide significant uncertainty relative to SMUD's approach of integrating Yolo loads with SMUD's existing transmission system. In addition, the costs associated with transmission and control area services are significant and do not contribute to stable rates or reliable services in the long term. Future upgrades needed on the transmission system may prove difficult as PG&E (the transmission owner) will have little incentive to maintain and improve the transmission system to SMUD's standards. At worst, the CAISO option can serve as an interim bridge while SMUD constructs and reconfigures transmission lines.

Distribution

Staff confirmed R.W. Beck's assessment and determined that the distribution system can be readily annexed and incorporated as part of the SMUD service area. No significant technical challenges or obstacles were identified with annexation.

The distribution system is primarily radial overhead and underground lines with a mix of construction methods. R.W. Beck developed detailed lists of facilities and equipment inventories consistent with prudent utility practices. Staff compared R.W. Beck equipment and inventory ratios against the SMUD system and found the ratios to be consistent with SMUD'S ratios.

R.W. Beck completed an engineering analysis to identify adequacy of the distribution system and deficiencies including future upgrades to serve load. SMUD validated R.W. Beck's technical assessment and determined that R.W. Beck's analysis and approach to be sound.

In certain cases, staff applied SMUD engineering standards and construction practices and made adjustments to inventory and facility designs. Some variances were identified in meter inventories and underground services. In addition, staff observed that PG&E and SMUD design and construction practices differ. SMUD distribution design and construction practices tend to favor large feeder lines enabling loads to be switched from one source to another whereas PG&E tends to use smaller capacity lines running further from source substations. SMUD's approach requires larger upfront capital outlays whereas PG&E's approach generally requires significant capital investment to serve added load or to handle contingencies, outages, or equipment failures. Both practices are acceptable but produce different reliability outcomes.

Staff reviewed R.W. Beck's forecast of annexation area loads and determined that the projections used are consistent with SMUD's experience in Sacramento. From 2004 through 2013, Beck assumed the annual growth for the annexed area to be approximately 5.2 percent; in comparison SMUD's projected annual load growth is estimated to be 2.7 percent. Although annexation area growth is higher, it does compare to high growth areas within the District. Projected growth enables a conservative analysis with a 2013 total load estimate of 395 MVA.

R.W. Beck's study calls for a 240 MVA increase in 115/12kV transformer capacity bringing the total transformer capacity to 613 MVA representing transformer capacity utilization of 64 percent. In the R.W. Beck study the loads are treated as three independent service areas, i.e. Davis, Woodland, and West Sacramento/Deepwater, thus justifying lower transformer utilization. In comparison, SMUD's scenario suggests a net transformer capacity increase of 68 MVA. This capacity increase would bring the total annexed area transformer capacity up to 441 MVA. The transformer capacity utilization would then rise to 80 percent by 2013.

R.W. Beck's study includes costs for the existing substations in the proposed annexation area that are reasonable but somewhat conservative. Generally, SMUD staff estimated that costs for substations are lower than R.W. Beck's estimates primarily due to lower transformer unit costs. R.W. Beck's study also includes costs for what are expected to be customer-owned substations. Staff in its assessment did not include costs for the customer-owned substation with the exception of high voltage metering costs.

R.W. Beck's study identified Plainfield substation load to be included in the annexation area. District staff reviewed the inclusion and determined that the load can be served from existing or future 115/12kV substations. In addition, PG&E's 60kV sub-transmission and related substation facilities and the University of California, Davis load and facilities were not valued or included in SMUD's study.

Engineering analysis completed by District staff verified certain distribution systems in the study area that may be deficient and may require enhancements to bolster local voltage and load carrying capabilities. Neither R.W. Beck nor SMUD have considered system improvements to address differences in construction practices between PG&E and SMUD and resulting reliability differences as part of annexation startup costs. It is understood that if annexation occurs, any load growth would likely be addressed utilizing SMUD design and construction standards resulting in higher reliability over time for the annexed area.

Based on SMUD's analysis of the distribution system and R.W. Beck's valuation and facilities assessment, District staff concurs with R.W. Beck's conclusion that there are no technical barriers or obstacles to incorporating the annexation area distribution system into SMUD's distribution system.

Valuation

R.W. Beck identified three methodologies to establish the value of the annexation area transmission and distribution systems. SMUD staff reviewed and verified these methodologies and recommends use of R.W. Beck's Cost Approach as the most appropriate valuation methodology. The Cost Approach estimates system value based on calculating Original Cost (OC) and Replacement Cost New (RCN) and then applying straight line depreciation to determine Original Cost Less Depreciation (OCLD) and Replacement Cost New Less Depreciation (RCNLD). Depreciation reduces the value of the system due to its age and condition.

SMUD staff validated R.W. Beck's system valuation by confirming inventory quantities, type of construction, condition and age of facilities, and unit costs of the equipment and installation. SMUD staff completed field inspection and condition assessments of distribution and transmission lines as well as independent assessment of real estate and right-of-way costs. SMUD valued real estate and rights-of-way at market value where R.W. Beck's real estate costs were not segregated and may have been depreciated. Based on staff's verification and analysis, staff's estimate of the transmission, distribution, and overall system value for the annexation area is as follows:

	RW Beck (In $ Millions)	SMUD (In $ Millions)	Difference (In $ Millions)
Transmission			
OCLD	*$2*	*$3.6*	*+$1.6*
RCNLD	*$17*	*$14.7*	*-$2.3*
Distribution			
OCLD	*$53*	*$80*	*+$27*
RCNLD	*$91*	*$115.7*	*+$24.7*
Total System			
OCLD	*$55*	*$84*	*+$29*
RCNLD	*$108*	*$130*	*+$22*

R.W. Beck's estimates for RCNLD on the transmission system were higher due to higher unit costs and more stranded facilities as compared to an alternative scenario developed by SMUD staff. In addition, higher costs for real estate and rights-of-way were offset by lower costs on transmission equipment resulting in a reduction in transmission RCNLD.

However, SMUD's distribution costs relative to R.W. Beck's are higher. Staff increased the number of meters, service drops, and adjusted for higher cost of some underground facilities including feeders. The changes made by SMUD staff were based on available public information and comparisons of SMUD's system and unit costs. To be conservative and given the limited information provided by PG&E, distribution costs were increased to better reflect SMUD's construction standards and unit costs. These changes in assumed costs and construction standards result in an increase in distribution system OCLD and RCNLD.

SMUD staff reviewed PG&E's limited information on estimates of distribution and transmission system value. Based on SMUD's staff review it is clear PG&E's estimates were overstated by:

- Exaggerating unit costs
- Providing estimates that do not reflect observed or known field conditions
- Claiming distribution easement costs that are inconsistent with industry practices
- Double counting of costs on underground line construction

SMUD's system valuation reflects SMUD's current electric construction and installation practices, industry standards, and reasonable assumptions on the type and length of underground structures and lines. SMUD's valuation supports R.W. Beck's assessment of transmission and distribution system value.

Annexation Area Separation from PG&E

Staff reviewed the separation issues and determined that there are no significant technical issues with transmission or distribution separation.

A number of transmission lines will be reconfigured based on the SMUD transmission scenario with construction of a new 115kV double circuit line from Woodland to Elverta Substation. The right-of-way acquisition for the new line does not appear complicated once an environmental impact report (EIR) has been completed. Staff has determined that adequate substation space and configurations are available for the proposed additions and modifications. SMUD and PG&E transmission lines in the Rio Oso-West Sacramento, Brighton-West Sacramento, and Davis-Brighton share corridors making the physical reconfiguration relatively straightforward.

In R.W. Beck's study, the Brighton-Davis 115kV line is configured as the Hurley-Davis line. Whereas, in the SMUD scenario the line is configured at Hedge-Davis line idling or stranding the Davis 115kV line position at Brighton Substation. Staff assumed the line would be reconfigured in the common right-of-way close to SMUD's Hedge-South City 115kV lines. Similarly, the line taps on the Rio Oso-VacaDixon lines will be disconnected and Woodland line reconnected to the proposed new transmission line to Elverta Substation. In this case a portion of the tap from Woodland Substation to the Rio Oso-VacaDixon line would be idled. None of these transmission separations and reconfigurations poses technical problems.

Additionally, both R.W. Beck and SMUD technical studies and valuation assumed that the University of California, Davis load would be served from PG&E's Vaca-Dixon Substation and the Davis Substation 115/60kV transformer will be idled or stranded. New interconnections between PG&E and SMUD can be established on the 115kV and 60kV transmission system that could be mutually beneficial.

Separation and isolation of the distribution system is relatively uncomplicated where existing switches or line jumpers can be removed providing for clear demarcation of facilities.

Separation, Startup, and Ongoing Capital Costs

R.W. Beck's estimated separation and startup costs are in line with staff's estimates. SMUD's startup cost estimate includes installation of new distribution and transmission facilities, obtaining system information and records from PG&E, and costs of incorporating the annexed facilities into SMUD's Geographical Information System, Outage Management System, and SAP.

R.W. Beck estimated ongoing capital requirements to be 1% of acquisition costs. SMUD's approach was to use its 2005 budget to estimate ongoing capital upgrades, which includes costs for cable replacement, cable injection, pole replacements, pole reinforcements, new services (net of Rule 15 and Rule 16 revenues), and local agency improvements. This resulted in a slightly lower annual capital requirement mainly due to R.W. Beck not including developer contributions as an offset to annual capital requirements.

	RW Beck (In $ Millions)	**SMUD (In $ Millions)**	**Variance (In $ Millions)**
Separation Cost	*$2*	*$2.3*	*+$0.3*
Startup Cost	*$45**	*$40*	*-$5*
Ongoing Capital	*$5.2*	*$3.3*	*-$1.9*

*Additional $6M in 2013 to include transmission enhancements such as line re-conductor and capacitor installs

ECONOMIC EVALUATION OVERVIEW

R.W. Beck's annexation economic analysis studied numerous scenarios and tested many assumptions, finding that under the vast majority of circumstances SMUD annexation would result in positive margins and savings for Yolo customers. Savings ranged from a low of –2.2% to a high of 11.25%, with a "most likely" case that resulted in an 8.5% savings. Given little useful data and cooperation from PG&E, R.W. Beck's analysis made reasonable assumptions on key variables and addressed economic risks through sensitivities. SMUD staff has reviewed R.W. Beck's analysis and believes both the methodology and the assumptions applied were reasonable. However, SMUD staff developed its own analysis to address alternatives on key assumptions, incorporate SMUD's expected cost of serving Yolo customers, validate important inputs, and evaluate the potential for SMUD's existing customers to benefit from annexation. SMUD's staff analysis essentially confirms R.W. Beck's results and indicates that annexation could result in an 8% margin relative to PG&E's forecasted average rates. In addition, the analysis also shows that depending on how these margins are divided, current SMUD customers are likely to have both tangible and intangible benefits due to annexation. Although SMUD staff believes positive margins over the entire study period are very likely, relatively high power supply, debt service, and exit fees in the short run could limit the savings prior to 2012. The following describes the key variables and assumptions addressed by the SMUD staff analysis.

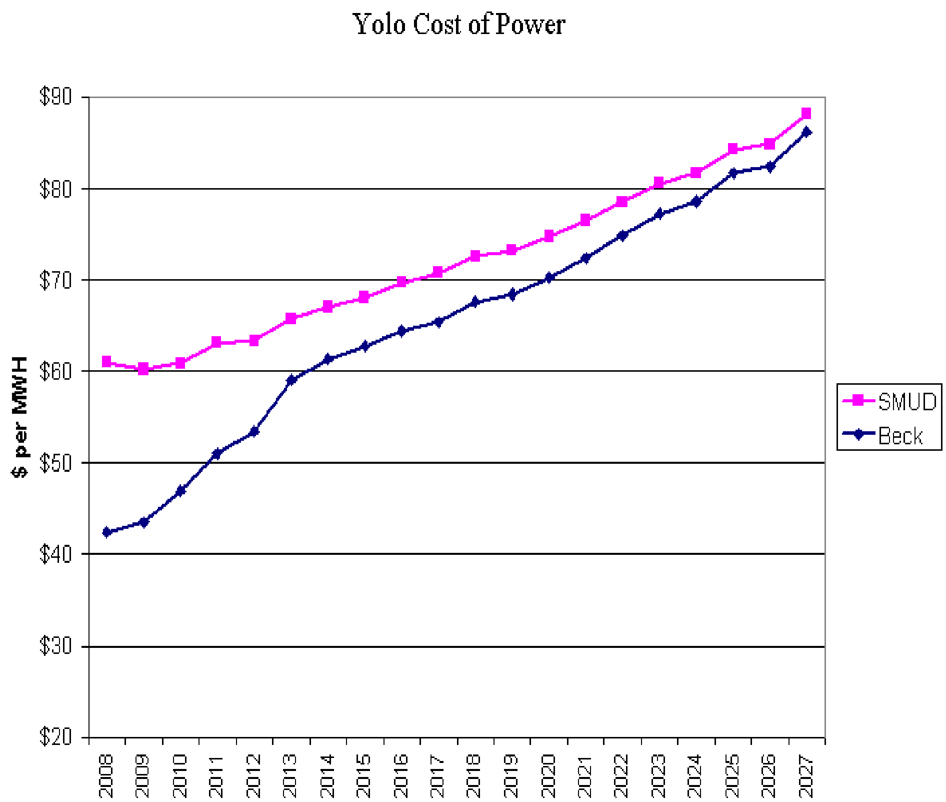
Power Supply Costs

Power supply costs include energy, capacity, ancillary services, and renewable energy supplies for the annexed area.

Staff evaluated the costs of supplying energy, capacity reserves, and ancillary services, for base and intermediate load energy through ownership of a new natural gas fired generation plant. Costs for energy during peak load periods are met through long-term purchase power contracts.

The costs for both new natural gas generation and purchase power contracts are based on generation data included in CPUC Rulemaking 04-04-026 (Filed April 22, 2004). Natural gas costs were the same as those used in the R.W. Beck study and financing costs included a 30% debt service coverage. The cash flow from the debt service coverage is used to offset future investment requirements in new plant so that over time customer equity accumulates and the fixed cost component of power decreases on an energy basis. Costs also include a $5/MWh renewable adder for 20% of annexation area energy requirements.

The resulting power supply costs are higher than those included in the R.W. Beck study, as shown in the figure below.



In addition, power supply costs for PG&E's uncommitted energy also increased to reflect a similar energy purchasing strategy as that used to meet Yolo loads. The impact of these changes in power costs assumptions is to increase the cost of power for both Yolo and PG&E. The increase to PG&E is slightly less because about 30% of PG&E's long term resource mix comes from hydroelectric or nuclear power. Overall, these assumption changes reduced the net present value of annexation savings by approximately $34 million, or about 1.5% relative to R.W. Beck assumptions on power supply costs.

Debt Service and Acquisition Costs

Based on SMUD's technical evaluation of the R.W. Beck study and SMUD's independent verification of the value of the Yolo electric system, initial debt issuance included the costs of system acquisition, severance costs, startup costs, litigation costs, and costs of debt issuance. Ongoing capital investments were also included in the year in which they are incurred. Initial capital investments were assumed to be financed entirely with debt issued at the beginning of the year when the assets are acquired. The debt service revenue requirement included debt service coverage, resulting in a revenue requirement of 1.3 times debt service. The additional coverage was retained as equity and used to partially finance capital investments in subsequent years. The remaining balance of subsequent capital additions were financed with tax-exempt debt issued at the beginning of the year in which the capital assets were acquired.

Debt payments for all debt issued was based on level payment of principal and interest with a thirty-year term. An interest rate of 6.25% was used for taxable debt while tax-exempt debt was issued at 5.00%. Overall debt payments based on these assumptions were slightly lower than R.W. Beck's assumed debt service payments and resulted in an increase in the net present value of savings of about $30 million.

Exit Fees

During the California energy crisis in 2000-2001, the California Department of Water Resources (DWR) took over purchasing energy for California's Investor Owned Utilities (IOUs). The energy purchased and the energy contracts signed by the DWR were generally more expensive than subsequent market prices. As a result, any customers no longer requiring IOU energy resources (including long-term DWR contracts) were obligated to pay exit fees. The California Public Utilities Commission (CPUC) in Decision 04-12-059 allowed certain customers exemptions from a portion of the exit fees on the basis that their loads were not included in the load forecasts used by the DWR to acquire the long-term energy contracts. R.W. Beck assumed that all of the City of Davis load and 20% of all new load in the annexation territories would receive exemptions from the exit fees.

To be conservative, SMUD staff has assumed that the exit fee exemptions will only apply to 10% of Davis load and to none of the new load in the annexation territories. To the extent that new load or more than 10% of Davis load receives an exit fee exemption, savings between about 2008 and 2012 will increase by approximately $10 million on an NPV basis.

SMUD Average Rates and Rate Forecast

SMUD average rates by customer class constitute the basis for projecting SMUD revenue in the proposed annexation area. Residential average rates were developed using rates that became effective on March 30, 2005, combined with residential usage in the annexation territory. Residential usage in the annexation area was obtained from a 1997 PG&E database that included monthly energy use data for every residential customer, sorted by zip codes. The analysis relied on this robust data sample to model monthly tier energy use by annexation area and city, a critical factor for estimating residential pricing under SMUD's three-tier rate structure. Commercial average rates were developed using estimated load shapes that were consistent with the load shapes provided by PG&E for commercial customers in the annexation area, but with greater detail.

The resulting average residential and commercial rates were weighted by energy use by rate class provided by PG&E for the three annexation communities. The final average rate per jurisdiction ranges between 9.3¢ per kilowatt-hour for West Sacramento to nearly 10.0¢ per kWh for Davis.

Weighted Average SMUD Rate by Area

West Sacramento	Davis	Woodland
$0.0930	$0.0999	$0.0956

These average rates were then forecast based on inflation, expiring long-term contracts, reduced nuclear decommissioning costs, hydro relicensing costs, open position energy costs, natural gas costs, and renewable power supply costs.

PG&E Average Rates and Rate Forecast

PG&E average rates help determine the margins associated with annexation as PG&E average rates are the rates Yolo customers would otherwise pay absent annexation into SMUD's service area. To project future PG&E rates Yolo customers would be exposed to, SMUD staff reviewed PG&E class specific rate and load shape information. PG&E provided limited information in response to data requests submitted by the Yolo jurisdictions to help determine or verify appropriate existing or future PG&E average rates. However, PG&E did provide system average rates by customer class from its Phase II General Rate Case ("GRC") filing and a table showing estimated Phase II average rates for West Sacramento, Davis, and Woodland by customer class. The table also presented kWh sales information for customer classes including residential, small commercial, medium commercial, large commercial, agricultural, and other.

SMUD staff validated PG&E residential rates using residential billing data obtained from PG&E in 1997. In response to data requests, PG&E submitted typical weekday/weekend load shape data providing average hourly energy use for each month of the year by customer class. Both residential and commercial hourly load shapes were comparable to SMUD's typical weekday/weekend load shapes.

Results of the review validated PG&E's estimated residential average rates by annexation area and the use of PG&E's GRC Phase II average rates for commercial customers. The table below presents the average estimated rate for three Yolo annexation communities.

Average Estimated Weighted PG&E Rate (Yolo Annexation Area)

West Sacramento	Davis	Woodland
$0.1187	$0.1310	$0.1235

PG&E's average rates were forecast based on inflation, expiring DWR contracts, new nuclear investments, hydro relicensing costs, PG&E's open position energy costs, QF contract expirations, renewable power supply costs, and natural gas costs. Over the long run the average rate differential between PG&E and SMUD is between 15%-20%.

Operations, Maintenance, and Overhead Costs

Operations, maintenance, and overhead costs are an important factor in determining potential annexation benefits derived from economies of scale, i.e. spreading costs over more usage. R.W. Beck essentially assumed that there would be few economies of scale in annexation. However, SMUD completed a detailed analysis of all Business Units (Customer, Distribution, Energy Supply, and Corporate Services) to develop an estimate of the incremental costs of serving the annexed territory. Each business unit estimated the number of additional positions required and incremental labor costs were calculated at 2005 wage and salary rates. New costs were included to address impacts on the customer call center, meter reading, communications (phones), operations and outage restoration, and general district operations. In addition, Business Units estimated the increase in other direct costs, such as contract services and materials and equipment. All other direct costs were increased by 10-15% over 2005 budget levels and indirect costs (administrative, training, office supplies, etc.) were estimated at approximately 4-5% in support of new direct positions. Allocated costs for technology, transportation and facilities were increased approximately 4% to account for additional vehicles and computer support.

Based on SMUD's analysis, there are significant savings due to economies of scale that should reach about $91 million on a net present value basis relative to the costs included in the R.W. Beck study.

Overall Impact of SMUD Analysis

Based on the assumptions and analysis SMUD conducted, there are significant savings over the long run. The savings in the early years are modest due to exit fees, the levelized recovery of debt service costs, and relatively high power market and natural gas prices. Over the long run, these costs are mitigated (mainly through increases in customer equity) resulting in a relatively larger share of savings in the latter years. Overall, SMUD expects an average of 8% savings over a 20 year period on a net present value basis.

In addition to SMUD's base case analysis that produces an 8% savings ($180 million NPV) over 20 years, SMUD also developed a sensitivity analysis to evaluate power supply, exit fee, and debt service options that would help mitigate annexation costs. SMUD's sensitivity analysis made the following assumptions:

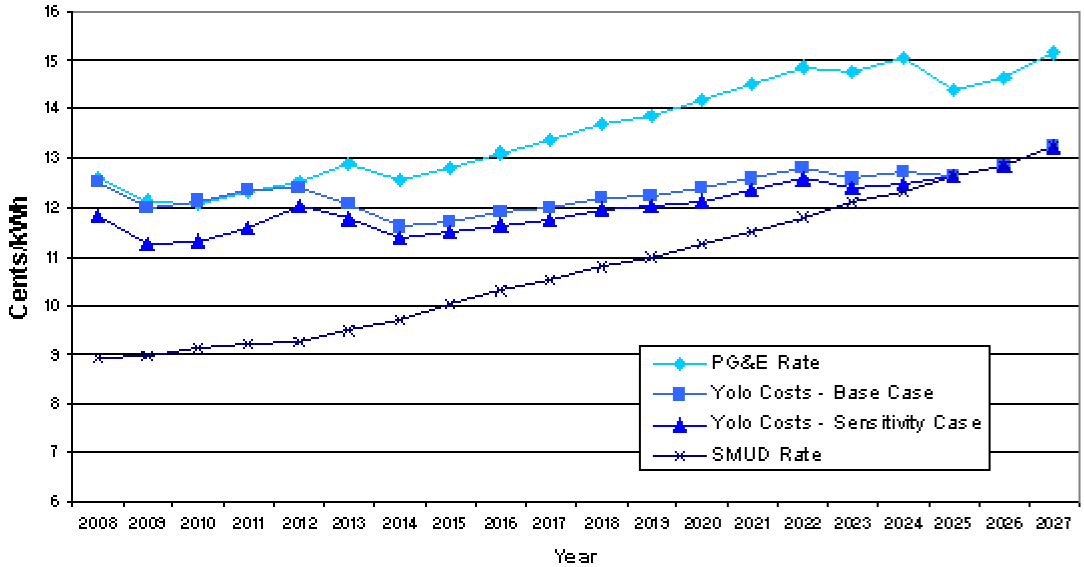
- **Power Supply:** Rather than assuming that all Yolo energy sales come from a combination of new customer-owned generation and peaking contracts, a portion of the off-peak Yolo energy sales were assumed to come from Consumnes Power Plant ("CPP") at CPP's marginal cost of energy. In the first five years of annexation (2008 - 2013), SMUD expects that CPP will have surplus energy to sell in the off-peak hours. Rather than selling off-peak energy at market prices and incurring ISO fees for delivery, a portion of CPP's energy is assumed to be sold to Yolo area customers, reducing Yolo customers' cost of energy.

- **Debt Service Costs:** SMUD may have sufficient annual cash flow to invest in the Yolo electric system to avoid financing the acquisition with taxable debt. If SMUD were to invest cash flow in the Yolo electric system, cash flow would not be available to invest in SMUD's existing capital requirements. However, new tax-exempt debt could be issued to cover current capital needs. The net effect of investing cash flow in the Yolo electric system is to displace taxable debt with tax-exempt financing, lowering the cost of SMUD's debt service. In addition, SMUD's existing debt portfolio includes some variable rate debt at lower cost than fixed rate debt. Assuming that SMUD's new financing to cover the value of the Yolo assets will include some variable rate debt further lowers SMUD's debt service costs.
- **Exit Fees:** If annexation moves forward, SMUD will pursue acquiring all available exit fee exemptions for as much of Yolo customers' load as possible. Assuming more than 10% of Davis load and some new load will ultimately be exempt from a portion of the exit fees lowers the cost of serving the Yolo jurisdiction.

Given these changes, SMUD estimates that the NPV of savings over 20 years increases to about $240 million and that PG&E's rates will exceed SMUD's cost of serving Yolo customers by more than 3% every year.

SMUD staff calculated total annexation benefits as the difference between PG&E rates and SMUD's cost of serving Yolo customers. PG&E's rates are the rates Yolo customers would otherwise pay absent annexation, so any rates below PG&E's generates benefits for use in paying off Yolo costs or for sharing between Yolo jurisdictions, customer classes, or with SMUD's existing customer base. To the extent SMUD's Yolo cost of service is below PG&E's rates, benefits will accrue. SMUD staff estimates the Net Present Value (NPV) of the benefits over the 20 year period of the study to be about $180 million in the Base Case (see Appendix D), and the NPV of benefits over 20 years to be about $240 million in the Sensitivity Case (see graph below).

Comparison of Average Rates
and Yolo Costs (Including Surcharge)



Benefits accrue in either case because SMUD's Yolo cost of service is below PG&E rates over time. The primary reasons SMUD can serve Yolo County customers at a lower cost than PG&E are:

1) Significant economies of scale in annexing the Yolo customers. SMUD's customer base will expand by 12% while costs are estimated to expand by only 6.7%. Please see the section of this report that discusses the O&M and A&G cost savings for more information.
2) Municipal financing and ownership of assets, including generation, distribution and transmission facilities is cheaper in the long run because SMUD uses cash flow produced by these assets to pay off the assets rather than paying shareholders.
3) Exit fees diminish over time but PG&E's power costs continue to increase as a result of expiring long term contracts, investments in Diablo Canyon, hydroelectric relicensing, and renewable power costs.

SMUD staff expects that over time the Yolo customer cost of service will slowly decrease until a surcharge above SMUD's existing rates would no longer be required. The size of the surcharge, how long the surcharge may be in place, and how the benefits of the Yolo annexation will be divided will be decided by the SMUD Board.

Additional Sensitivities

SMUD staff reviewed the assumptions in this study that, if changed, could significantly change the 20-year net present value and/or the rate margin in the first five years. Acquisition price, natural gas prices, exit fees and interest rates were identified. Following is a discussion of each sensitivity.

Acquisition Cost – Each $10 million change results in a change in net present value of .5% and a .5% change in the rate differential during the first five years. The potential range of this input is limited by the extensive review of the electric facilities in the annexation area. In addition, study costs were compared to benchmarks such as SMUD investment per customer, PG&E's market to book and market to book of electric utility mergers. The range of uncertainty related to acquisition price is well within the potential benefits.

Gas price – For each increase in gas prices of $1/MMBtu over the entire study period, the net present value is decreased by 1.75% and the rate margin in the first five years is reduced by 2.5%. The most significant mitigation is that increases in gas prices will also increase PG&E rates, although not at the same rate (as discussed in the power supply section). Price spikes in gas prices can be mitigated through a portfolio of gas contracts that expire at staggered dates.

Exit fee – There are two issues associated with exit fees. The first issue is whether or not they are applied to departing load. The second issue is the regulatory timing of adjustments such that the exit fee over-collects the above market costs of DWR contracts. Assuming the worst for the annexed loads mitigates the first issue. The second issue is short-term and might be influenced by vigorous participation in the regulatory proceedings.

Interest rates – Although higher interest rates could increase the annual cost of annexation, a permanent rise in rates would result in increases in PG&E's capital cost that would offset much of the increase in the short run and actually increase the margin in the long run. If the increase were transitory, the increased cost would be limited to the call period on initial bonds. The short-term spike in interest rates would have to be over 200 basis points before it would have a significant impact on short-term margins.

Existing SMUD Customer Benefits

SMUD has completed an analysis to determine the benefits to existing SMUD customers that could accrue as a result of annexation. SMUD reviewed cash contributions that are currently made by existing SMUD customers as well as cash contributions expected to be made by Yolo customers. Generally, while Yolo customers' energy is expected to cost more than current SMUD customers' energy (for study purposes, no allocation to Yolo customers of existing low cost hydro or other resources has been assumed), the economies of scale savings on O&M costs more than make up the difference. In addition, Yolo customers' total debt service costs are expected to be lower than SMUD customers and decommissioning costs can be spread over more usage. Based on SMUD's analysis, Yolo area customers are expected to provide cash contributions in excess of existing SMUD customers throughout the study period as depicted in the table below. Yolo's cash contributions would equal about $20 - $25 million over the 20 years of the study. Expected positive cash contributions by Yolo customers beyond that of SMUD's existing customers will help compensate SMUD's existing customers for providing Yolo customers rate certainty during the first five years of annexation.

Comparison of Cash Contribution				
	2008 - 2012		2013 - 2017	
$/MWH	SMUD	YOLO	SMUD	YOLO
Customer Revenue	98.72	96.35	98.72	96.35
Power Supply	44.02	54.19	50.89	61.27
O&M + Public Good	21.66	11.81	22.4	11.93
Decomissioning	0.83	0	0.43	0
Debt Service	16.25	13.06	15.04	12.26
Cash Contribution	15.96	17.29	9.96	10.89

In addition to the cash contributions made by Yolo customers, there are additional benefits of more load over which SMUD's power portfolio can be diversified and economies of scale that should continue to accrue over time as a result of annexation.

SECTION 1
TECHNICAL EVALUATION

TECHNICAL EVALUATION

SMUD staff reviewed the technical aspects of the R.W. Beck study to determine the validity and feasibility of serving the proposed annexation areas. The R.W. Beck study contains a comprehensive assessment of existing transmission and distribution facilities and inventories and is well documented for further evaluation. District staff validated R.W. Beck's technical methodology and in some cases made adjustments based on SMUD's experience, information available from public sources, and the approach SMUD would take to serve the proposed annexation area loads. District Staff believes that annexation of the areas addressed in the R.W. Beck study is technically feasible and would result in better utilization of SMUD's existing transmission system.

Transmission Options

R.W. Beck studied four annexation scenarios that addressed various load and jurisdictional options and transmission arrangements. R.W. Beck's methodology and assumptions in developing the four cases is well documented and extensive efforts were evident by R.W. Beck to identify and include as much inventory as possible despite the lack of cooperation from PG&E. SMUD staff reviewed R.W. Beck's options and conducted numerous load flow, system protection and system studies to validate and determine the technical feasibility of R.W. Beck's approach and to evaluate potential alternatives. While all of R.W. Beck's options are technically feasible, SMUD staff further studied only the option of annexing all three cities along with portions of Yolo County. This option is the system configuration that would be most cost effective, lowers the cost of initial transmission interconnection, offers the greatest use of existing and new transmission facilities, is the most technically feasible, and has the most support from the jurisdictions.

This section details SMUD staff's review of the R.W. Beck study for technical feasibility and the costs associated with transmission lines and substations. Staff first looked at the adequacy of the transmission system and then examined the physical modifications necessary to correct any inadequacies found in the transmission system. SMUD staff also reviewed two options for serving the proposed annexation area; 1) wheeling energy through PG&E/CAISO and 2) interconnection of transmission loads with SMUD's existing 115 kV system.

The California Independent System Operator (CAISO) Option

R.W. Beck assessed the use of the California Independent System Operator (CAISO) as the Transmission and Control Area service provider for the annexation area. R.W. Beck assumes SMUD would acquire the existing substations that serve the proposed annexation area under the CAISO option. This option requires SMUD to install meter sets at all of the transmission line terminals. It would also require SMUD to wheel power over PG&E's existing transmission lines. SMUD staff estimates a metering set at each terminal would cost between $90,000 and $150,000 each, for a total cost of about $450,000-$750,000 for all affected substations. In addition to the cost of new metering, SMUD would also pay significant on-going costs for CAISO services and wheeling charges.

SMUD staff does not recommend the CAISO approach as changing tariffs, regulations, and reliability provide significant uncertainty relative to SMUD's approach of integrating Yolo loads with SMUD's existing transmission system. In addition, the costs associated with transmission and control area services are significant and do not contribute to stable rates or reliable services in the long term. Future upgrades needed on the transmission system may prove difficult as PG&E will have little incentive to maintain and improve the transmission system to SMUD's standards. At worst, the CAISO option can serve as an interim bridge while SMUD constructs and reconfigures transmission lines.

Acquire and Build the Transmission System Option

SMUD's analysis determined reconfiguration of existing PG&E and SMUD transmission lines would be the most cost effective and technically viable method of interconnecting certain Yolo load with the existing SMUD 115kV transmission system. Specifically, the Brighton-Davis line would be converted to Hedge-Davis; Rio Oso-West Sacramento and Brighton-West Sacramento would be re-terminated as North City-West Sacramento and Hurley-West Sacramento respectively. In addition, SMUD staff determined that a new double circuit line (approximately 18 miles) from Elverta Substation to existing Woodland substation would be required. Staff has evaluated the technical and real estate rights-of-way issues involved in building the new line and believes the construction of the new line would take approximately two to three years including environmental and other permitting requirements. New construction and reconfiguration of the existing transmission system would not require a significant lead-time and can be completed by 2008. The cost of reconfiguring existing lines and constructing the new double circuit line to Woodland would be less costly than the transmission alternatives identified in the R.W. Beck report.

The proposed SMUD transmission configuration leverages existing capacity and infrastructure as well as minimizes the stranding of PG&E transmission facilities. For example, R.W. Beck proposed an additional 200 MVA 230/115 kV transformer at the Hurley Substation. However, SMUD staff determined the new transformer is not needed based on existing capacity and planned changes on the 230/115 kV system, which include a relocation of a 230/115/69 kV transformer from the Elk Grove

Substation to the Elverta Substation in 2005-2006. The configuration under the SMUD Scenario enables PG&E to utilize and continue to serve its adjoining loads with the same or improved reliability. SMUD studies also demonstrated potential benefits to PG&E's transmission system as a result of reduced capital costs for transmission improvements associated with regional loads and the Rio Oso and Vaca-Dixon Substations. The following chart summarizes the differences between R.W. Beck's Scenario 4 and the SMUD Scenario.

Differences Between R.W. Beck and SMUD Scenario

	Transmission lines to be acquired from PG&E	Stranded PG&E transmission lines	Transmission lines to be built by SMUD
R.W. Beck's Scenario 4	66.31 miles	41.84 miles	16 miles
SMUD Scenario	62.07 miles	10.66 miles	21.5 miles

In summary, the SMUD Scenario would require the District to acquire fewer transmission lines from PG&E. It would also mean SMUD would need to build over five additional miles of transmission lines, however, significantly fewer PG&E transmission lines would be stranded under the SMUD Scenario.

Transmission System Evaluation

A transmission system analysis was conducted to determine the feasibility of the SMUD Scenario and identify any transmission upgrades required to maintain reliability. Transmission studies indicate reconfiguration of the transmission system should have no adverse impact on the PG&E or SMUD transmission systems. A future interconnection with PG&E on the 115kV system is technically feasible and may serve to enhance regional transmission capabilities and reliability for both SMUD and PG&E. SMUD staff will continue to explore ways to maximize the final transmission configuration in a manner that best meets the needs of the District.

Annexing the loads of West Sacramento, Davis, Woodland, and portions of Yolo County into the District's control area by 2008 would require the following additions or modifications to SMUD's transmission facilities:

1) Reconductor the existing PG&E 115kV line, West Sacramento–Deepwater Tap–Davis line
2) Construction of two new 115kV lines; Elverta–Woodland (~18 miles each)
3) Move a 230\115 kV transformer bank from Elk Grove to Elverta
4) Develop a new Hedge–Davis 115kV line utilizing most of PG&E's existing Brighton–Davis line
5) Develop a new Hurley–Deepwater–West Sacramento line using most of PG&E's existing Brighton–Deepwater–West Sacramento line (partial reconductoring would be required)

6) Add a North City–West Sacramento line using a short portion of PG&E exiting Rio Oso–West Sacramento line eliminating the Hurley-North City #1 line
7) Addition of 25–100 MVAr shunt capacitors at Davis and Woodland

SMUD staff found no transmission configuration issues that would prevent serving the proposed annexation area. Appendix A contains Load Flow Tables.

Startup Costs

The following table shows the startup costs for SMUD to build the proposed SMUD transmission configuration using SMUD's unit cost. Staff included R.W. Beck's unit costs for comparison as back up to the SMUD estimate. Cost related to acquiring the PG&E facilities that will be needed for the SMUD Scenario are discussed later.

SMUD Scenario Startup Costs

Description	Status	Quantity	Unit	RW Beck		SMUD	
				Unit Cost	Extended Cost	Unit Cost	Extended Cost
Steel Poles, Double circuit, 954 AAC Magnolia	New	18.00	Mi	$598,500	$10,773,000	$568,336	$10,230,048
Fiber Optic Communication	New	18.00	Mi			$47,500.	$855,000
Close to Elder Creek-Hedge							
Steel Pole, Single circuit, 954 AAC Magnolia	New	3.5	Mi	$565,000	$1,977,500	$568,336	$1,989,176
Elverta Substation							
115 kV Line Bays	New	1.00	each	$298,480	$298,480	$286,825	$286,825
230 kV Bays	New	1.00	each	$408,816	$408,816	$318,825	$318,825
115 kV Bays	New	1.00	each	$298,480	$298,480	$286,825	$286,825
230/115 transformer 200 MVA	New	1.00	each			$1,780,720	$1,780,720
230/115 transformer 200 MVA		200.00	MVA	$25,000	$5,000,000		
transformer pad and structure	New	1.00	each			$180,720	$180,720
Hedge Substation							
115 kV Line Bay	Existing	1.00	each			$286,825	$286,825
Startup					**$18,756,276**		**$16,214,964**

System Protection

The SMUD Scenario was also reviewed for system protection issues. In order to perform fault analysis, SMUD staff assumed the following changes:

1) Added a 230 kV transmission line from O'Banion to Natomas (25 miles)
2) Added a 230/115 kV, 140 MW transformer at Elverta
3) Added two 115 kV transmission lines from Elverta to Woodland (16 miles each)
4) Looped the Hurley-North City 115 kV line through West Sacramento
5) Modified the Davis-Brighton 115 kV line to the Davis -Hedge line (5 miles added to the existing line)

SMUD staff found no system protection issues that would prevent serving the proposed annexation area.

SMUD's Load Serving Capacity and Capability

SMUD has an existing 115 kV load of approximately 400 MVA, but transformer capacity of more than 800 MVA. Therefore, SMUD has adequate installed transformer capacity for the additional load that would be created through the requested Yolo annexation.

Although R.W. Beck did not address regional and local load serving capability, staff studies determined that Cosumnes Power Plant (500 MW) and Roseville Energy Park (150 MW) will need to be on line prior to annexation to comply with regional load serving and Control Area operational requirements. A future 230kV transmission line to Western Area Power Administration's (WAPA) O'Banion Substation from Natomas/Elverta Substation will further enhance the SMUD and regional system performance. Staff also confirmed R.W. Beck's assessment that local transmission improvements such as line re-conductoring and breaker replacements may be required to address contingencies as a result of load growth and deficient PG&E facilities in the area.

Validation of Transmission Replacement Cost New (RCN)

In order to generate the costs for the SMUD Scenario, SMUD staff created transmission line and substation unit costs and the opinions of value for transmission rights-of-way and property for substation sites. Several transmission lines may use the same right-of-way. Therefore, right-of-way costs in each of the scenarios have been totaled and added to the total construction costs for the SMUD Scenario. A summary table of the right-of-way costs, along with the opinions of value can be found in Appendix B.

SMUD staff developed the transmission unit cost by 1) comparing transmission costs from other utility sources, 2) using SMUD's experience with similar materials and construction, 3) estimating labor costs, and 4) pricing materials for construction.of transmission facilities. SMUD has recent experience with substation construction and used this experience as the basis for these unit costs. Appendix C lists the unit costs for substation construction.

Transmission Lines Replacement Cost New

The table bellows shows the transmission system replacement costs for the facilities SMUD will need to acquire from PG&E for the SMUD Scenario. SMUD staff used R.W. Beck's unit costs for comparison as back up to the SMUD estimate.

Replacement Cost New, SMUD Scenario

Description	Status	Quantity	Unit	RW Beck Unit Cost	RW Beck Extended Cos	SMUD Unit Cost	SMUD Extended Cost
W. Sacramento-Deepwater Tap 2							
Steel Poles, Double circuit, 715.5 AAC Violet	Existing	1.04	Mi	$570,000	$592,800	$56,8336	$591,069
Deepwater Tap 2-Hurley							
Lattice, Double circuit, 397.5 AAC Canna (50% of cost)	Existing	5.00	Mi	$292,000	$1,460,000	$551,603	$2,758,615
North City-Tap 2							
Lattice, Double circuit, 397.5 AAC Canna (50% of cost)	Existing	5.00	Mi	$292,000	$1,460,000	$551,603	$2,758,615
Deepwater Tap 1-West Sacramento							
Wood, assumed reconductored to 715.5 AAC Violet	Existing	1.76	Mi	$405,000	$712,800	$338,135	$595,118
Deepwater Tap 1-Davis							
Wood, single circuit, 715.5 AAC Violet	Existing	10.89	Mi	$405,000	$4,410,450	$338,135	$3,682,290
Deepwater Tap 1&2- Deepwater							
Steel Poles, Double circuit, 397.5 AAC Canna	Existing	2.39	Mi	$554,000	$1,324,060	$568,336	$1,358,323
P.O. Tap- Post Office							
Wood, Single circuit, 397.5 AAC Canna	Existing	0.66	Mi	$397,000	$262,020	$338,135	$223,169
Davis-Barker Jct							
Wood, Single circuit, 715.5 AAC Violet	Existing	9.85	Mi	$405,000	$3,989,250	$338,135	$3330630
Barker Jct- Close to Elder Creek							
Lattice, Single circuit, 397.5	Existing	15.96	Mi	$500,000	$7,980,000	$350,724	$5,597,555
Close to Elder Creek- Brighton							
Lattice, Single circuit, 397.5	Stranded	2.5		$500,000	$1,250,000	$350,724	$8,766,810
Davis-Hunt Tap							
Wood, Single circuit, 715.5 AAC Violet	Existing	1.09	Mi	$405,000	$441,450	$338,135	$368,567
Hunt Tap-Woodland Bio Mass							
Wood, Single circuit, 715.5 AAC Violet	Existing	9.04	Mi	$405,000	$3,661,200	$338,135	$3,56,740
Woodland Bio Mass-Woodland							
Wood, Single circuit, 715.5 AAC Violet	Existing	1.52	Mi	$405,000	$615,600	$338,135	$513,965
Hunt Tap-Hunt							
Wood, Single circuit, 715.5 AAC Violet	Existing	0.06	Mi	$405,000	$24,300	$338,135	$20,288
Woodland-Close to County Rd 18c							
Lattice, Double circuit 715.5	Existing	2.50	Mi	$600,000	$1,500,000	$551,603	$1,379,008
Woodland Poly Tap-Woodland Poly							
Wood, Single circuit, 4/0 alliance	Existing	0.31	Mi	$397,000	$123,070	$338,135	$104,822
Close to County Rd 18c-Rio Oso Tap							
Lattice, Double circuit 715.5	Stranded	8.16	Mi	$600,000	$4,896,000	$551,603	$4,501,080
					$34,703,000		**$31,715,465**
Right of Way Costs					**-**		**$7,418,568**
Total					**$34,703,000**		**$39,134,033**

To determine total costs, an additional $7,418,568, (PG&E's estimated cost for the right-of-way) was added to the SMUD estimate for a total of $39,134,033. The District would save approximately $20,000,000 by using the alternative transmission configuration developed by staff. Almost $15,000,000 of these savings comes from eliminating the stranded cost associated with the Rio Oso-West Sacramento line.

Transmission Substations Replacement Cost New (RCN)

R.W. Beck captures the replacement costs for substations in the proposed annexation area in the distribution section of its study.

PG&E designs and constructs its substations differently than SMUD, which results in differences in unit costs. SMUD generally does not use circuit switchers for transformer switching and clearing, but instead uses circuit breakers. PG&E uses circuit switches for switching and clearing of its transformers. PG&E also uses outdoor switchyards for 12 kV in its substations. SMUD uses metal clad switchgear for 12 kV in SMUD's substation. PG&E builds substations with greater capacity and builds fewer substations for a given load. SMUD builds substations with a smaller capacity and builds more substations for a given load to increase reliability and operational flexibility in switching during outages. These differences impact substation costs.

West Sacramento Substation

The West Sacramento Substation has three 115 kV line positions and three transformers. The line positions have circuit breakers and the transformers have circuit switchers. The table below shows the circuit breakers' cost estimated at $296,745. For estimating a circuit switcher, the table shows one half a circuit breaker. Three circuit breakers plus three half circuit breakers results in a quantity of 4.5 for the circuit breakers. The land costs are based on the opinion of value from SMUD Real Estate Services.

West Sacramento Substation RCN

Description	Unit Cost	Number of Units	Extended Costs
115 kV Breaker Position	$296,745.00	4.5	$1,335,352.50
Transformer, 30MVA	$586,020.00	3	$1,758,060.00
12kV Breaker, protection, disconnects	$50,240.00	11	$552,640.00
Civil Construction--new substation			$640,000.00
Support Structures (115kV Structures and Footings)			$100,000.00
Land			$600,000.00
Total			**$4,986,052.50**

Deepwater Substation

The Deepwater Substation has two line positions without circuit breakers or circuit switchers and one transformer position without a circuit breaker or circuit switcher. One quarter of the cost for a circuit breaker was used to estimate the cost of these line positions. This results in the .75 circuit breaker appear in the table below.

Deepwater Substation RCN

Description	Unit Cost	Number of Units	Extended Costs
115 kV Breaker Position	$296,745	0.75	$222,558.00
Transformer, 20MVA	$413,520	1	$413,520.00
12kV Breaker, protection, disconnects	$50,240	2	$100,480.00
Civil Construction--new substation			$640,000.00
Support Structures (115kV Structures and Footings)			$100,000.00
Land			$370,500.00
Total			**$1,847,058**

Davis Substation

Davis Substation has three transmission line positions and three transformer positions. This results in 4.5 circuit breakers number in the table below. The Davis Substation also has two different transformer sizes.

Davis Substation RCN

Description	Unit Cost	Number of Units	Extended Costs
115 kV Breaker Position	$296,745.00	4.5	$335,352.00
Transformer, 30MVA	$586,020.00	1	$586,020.00
Transformer, 45MVA	$768,760.00	2	$1,537,520.00
12kV Breaker, protection, disconnects	$50,240.00	13	$653,120.00
Civil Construction--new substation			$640,000.00
Support Structures (115kV Structures and Footings)			$100,000.00
Land			$675,000.00
Total			**$5,527,012.50**

Woodland Substation

Woodland Substation has three line circuit breakers and three circuit switchers. The table below shows 4.5 circuit breakers on the basis of one circuit breaker for each actual circuit breaker and one half circuit breaker for each circuit switcher.

Woodland Substations RCN

Description	Unit Cost	Number of Units	Extended Costs
115 kV Breaker Position	$296,745.00	4.5	$1,335,352.50
Transformer, 40MVA	$768,760.00	3	$2,306,280.00
12kV Breaker, protection, disconnects	$50,240.00	14	$703,360.00
Civil Construction--new substation			$640,000.00
Support Structures (115kV Structures and Footings)			$100,000.00
Land			$135,000.00
Total			**$5,219,992.50**

Plainfield Substation

Plainfield Substation has a single line position without either a circuit breaker or a circuit switcher. The transformer has a capacity of 12 MVA and has fuse protection. The 60 kV system serves the transformer so SMUD will replace the transformer with a transformer that has a 115 kV high voltage winding.

Plainfield Substation RCN

Description	Unit Cost	Number of Units	Extended Costs
115 kV Breaker Position	$296,745.00	0.25	$74,186.25
Transformer, 12.5MVA	$318,520.00	1	$318,520.00
12kV Breaker, protection, disconnects	$50,240.00	2	$100,480.00
Civil Construction--new substation			$160,000.00
Support Structures (115kV Structures and Footings			$50,000.00
Land			
Total			**$977,666.25**

Distribution Summary

Staff confirmed R.W. Beck's assessment and determined that the distribution system can be readily annexed and incorporated as part of the SMUD service area. No significant technical challenges or obstacles were identified with annexation.

The distribution system is primarily radial overhead and underground lines with a mix of construction methods. R.W. Beck developed detailed lists of facilities and equipment inventories consistent with prudent utility practices. Staff compared R.W. Beck equipment and inventory ratios against the SMUD system and found the ratios to be consistent with SMUD's ratios.

In certain cases, staff applied SMUD engineering standards and construction practices and made adjustments to inventory and facility designs. Some variances were identified in meter inventories and underground services. In addition, staff observed that PG&E and SMUD design and construction practices differ. SMUD distribution design and construction practices tend to favor large feeder lines enabling loads to be switched from one source to another whereas PG&E tends to use smaller capacity lines running further from source substations. SMUD's approach requires larger upfront capital outlays whereas PG&E's approach generally requires significant capital investment to serve added load or to handle contingencies, outages, or equipment failures. Both practices are acceptable but produce different reliability outcomes.

Staff reviewed R.W. Beck's forecast of annexation area loads and determined that the projections used are consistent with SMUD's experience in Sacramento. From 2004 through 2013, Beck assumed the annual growth for the annexed area to be approximately 5.2 percent; in comparison SMUD's projected annual load growth is estimated to be 2.7 percent. Although annexation area growth is higher, it does compare to high growth areas within the District. The area proposed for annexation has a similar ratio of urban to rural areas to the District's current ratio. The definition used for urban area is the area within the city limits. SMUD has a ratio of 25% urban to 75% rural. The proposed area has a mix of 23% urban to 77% rural.

Distribution Replacement Cost New (RCN)

A comparison between the distribution RCN costs developed by R.W. Beck and SMUD show R.W. Beck in general is lower in unit cost. R.W. Beck used costs based upon building the system by contract and building the entire system at once as a large construction project. SMUD's costs were developed for building parts in small increments. The SMUD underground costs include different construction methods and equipment than those included in the R.W. Beck unit costs. The underground differences and different substation equipment choices are the primary reasons for the SMUD unit costs to be higher than the R.W. Beck study costs. Additionally, R.W. Beck did not sufficiently account for underground service drops and meters in the cost analysis. SMUD staff included an additional 23,684 underground service drops and meters based on information provided by PG&E after the R.W. Beck study was released. SMUD also included $1.8 million for the street light system that is owned by PG&E. A comparison between the distribution RCN developed by R.W. Beck and SMUD indicate R.W. Beck's estimates are reasonable.

Substation Replacement Cost New (RCN)

R.W. Beck located each PG&E substation within the proposed annexation area. The substations were identified as West Sacramento, Deepwater, Davis, Woodland, and Plainfield. Three other 115 kV substations are customer-owned substations. These include the substations associated with Tyco Plastics, Hunt, and Post Office.

R.W. Beck conducted an inventory of the equipment within the substation facilities. Although R.W. Beck was not provided access to the facilities, R.W. Beck used bucket trucks to view the equipment within the substation walls. As a result, the age and ratings of the equipment was estimated and valued.

The PG&E substations, with the exception of Plainfield, are 115 kV to 12 kV substations. The Plainfield substation is connected to only the 60 kV. R.W. Beck's study included the Plainfield substation in the annexation area. District staff reviewed the inclusion and determined the load can be served from existing or future 115/12kV substations. In other words, the actual Plainfield substation would not be acquired, only the load served by the substation. Staff recommends that a new 115 kV substation be installed near the existing 115 kV line between Davis and Woodland. This new substation, along with new distribution lines, would connect to the feeders currently served by the Plainfield Substation. The new substation would also have feeders that will support North Davis and Southeast Woodland.

The Davis Substation has a 115 kV–60 kV transformer that is connected to the 60 kV system that supports the UC Davis substation south of town. This transformer would not be included in the annexation. PG&E's 60kV sub-transmission and related substation facilities and the University of California, Davis load and facilities were not valued or included in SMUD's study.

Overhead Inventory

R.W. Beck's overhead inventory was appropriate for the equipment identified. When the quantities were normalized for square miles of territory, numbers of meters, and MW-Hrs sold, the quantities compare well with the same measures within the SMUD distribution system. While the exact sizes of conductors, transformers, and substation equipment could not be validated, the assumptions used give reasonable estimates. Additionally, the maps R.W. Beck submitted show the overhead lines in the proper areas and arrangements.

Miles of Overhead Lines

The ratio of miles of overhead line per square mile in the proposed annexation area is less than the ratio within the existing SMUD service area. The smaller amount of lines can be expected due to the fact the Yolo Causeway reduces the amount of area for development. Also, the rural area within Yolo County is heavily agricultural and lightly populated, resulting in lower amounts of overhead conductors being installed.

Miles of Overhead Primary Conductors

	SMUD	Proposed Annexation Area
Miles of OH Primary Lines	3036.8 Miles	416.3 Miles
Miles of OH Secondary	1,759 Miles	55.18 Miles
Service Area	900 Sq. Mi	190 Sq. Mi
Ratio of Primary to Secondary	0.58	0.13
Ratio Area to OH Lines	3.37	2.19
Ratio Area to Secondary	1.954	0.29

<u>Overhead Secondary Circuits</u>

Secondary circuits are the conductor between the transformer and the service drop point. R.W. Beck estimated the mileage of overhead secondary circuits based on the number and size of the pole bolt transformers. R.W. Beck estimates the average length of overhead secondary to be 264 feet in both the rural and urban areas. SMUD has an average of 128 feet for urban areas and 134 feet for rural areas. The SMUD average length for overhead secondary is about one half of the length estimated by R.W. Beck. R.W. Beck estimated the length of secondary based on the number and sizes of the transformers.

The ratio of overhead secondary to overhead primary shows R.W. Beck has less than half the ratio found in SMUD's territory. Other ratios such as the ratio of secondary to the number of meters and ratio of secondary to number of transformers are less than half that found in the District. Without access to the PG&E maps, SMUD staff thinks a reasonable estimate for the secondary length would be to double the length documented by R.W. Beck. Therefore, staff used a length of 110.36 miles in its calculations.

Overhead Secondary Conductor

	SMUD	Proposed Annexation Area
Miles of OH Secondary	1,759 Miles	55.18 Miles
Miles of Feeder	4,125 Miles	442.94 Miles
Number of Meters	553,337	41,465
Number of PB XFMRs	33,666	3,469
Ratio of Sec to Feeder	42.6%	12.5%
Ratio of Sec to Meters	0.3%	0.1%
Ratio of Sec to XFMR	5.2%	1.6%

<u>Poles</u>

The R.W. Beck study included 10,560 poles in the system inventory (excluding the Davis 1107). SMUD has an average of about 35 poles per mile of overhead lines (feeder and lateral.) Using R.W. Beck's number of poles and overhead line mileage, there are 25.66 poles per mile.

R.W. Beck identifies the span lengths for 12 kV feeder, laterals, and secondary for both urban and rural areas. The R.W. Beck feeder span lengths are shorter than those found within the District. However, rural lateral and secondary span lengths are significantly longer. When the feeder and secondary distances are divided by the span lengths, the number of poles R.W. Beck used is correct.

Number of Poles in the Annexation Area

	SMUD	Proposed Annexation Area
Miles of OH Feeder (All Distribution Voltages)	4,125 Miles	416.3 Miles
Average Feeder Span Length	248.83 Feet	211 Feet
Number of poles needed by feeder span length	87,529	10,417
# of Poles is Area	145,000	10,560
# of Poles Per Mile for OH	35.15	25.66

Table of Span Lengths

	SMUD	Proposed Annexation Area
Feeder Span Length - Urban	249 Feet	211 Feet
Feeder Span Length - Rural	223 Feet	211 Feet
Lateral Span Length - Urban	249 Feet	132 Feet
Lateral Span Length - Rural	223 Feet	317 Feet
Secondary Span Length - Urban	114 Feet	264 Feet
Secondary Span Length - Rural	120 Feet	264 Feet

Overhead Transformer Inventory

R.W. Beck inventoried the overhead transformers by walking each circuit and line and counting the individual transformers. The transformer sizes were estimated when the kVA rating was not visible or readable from the ground.

R.W. Beck identified 3,439 transformer banks, consisting of 4,445 individual transformer tanks. R.W. Beck reports there may be some transformers that were not inventoried due to backyard construction. SMUD staff thinks R.W. Beck's number is valid because in a SMUD field inspection, poles and backyard transformers were readily visible from the street.

Table of Transformers

	SMUD	Proposed Annexation Area
# of OH XFMRs Banks	33,666	3,469
# of OH XFMR Tanks		4,445
Miles of 12 kV OH Feeder	3036.8 Miles	442.94 Miles
Ratio of XFMR to Feeder	8.16	7.83

Service Drops

R.W. Beck estimated the number of service drops based on the number and the size of the transformers. However, the total number of service drops does not represent the number of customers because there are customers served by underground service drops. This issue is discussed further in the underground distribution network section. Additionally, one service drop may serve multiple meters. R.W. Beck identified single- and three-phase overhead service drops. R.W. Beck reported the proposed annexation area averages three more services per transformer than SMUD. The sizes of the transformers may average a larger size than SMUD's average. R.W. Beck also found the area has a lower number of services per mile of overhead feeder.

Table of Overhead Service Drops

	SMUD	Proposed Annexation Area
# of OH XFMR	58,375	3,939
# of Services	421,617	40,471
Avg XFMR size	31.96	
Miles Of OH	3036.8	416
XFMR/Mile of OH	19.2	9.5
Services/XFMR	7.22	10.2
Services/OH Miles	138.8	97.29

Overhead Switches

R.W. Beck estimated the number of overhead switches by conducting a complete inspection of the overhead distribution lines. R.W. Beck gathered the data directly from field observations. The quantity of switches compares well with the quantities within the District. PG&E builds overhead lines for longer distances between substations and has fuses on most laterals off of the main line feeders. The number of overhead switches and cut outs identified by R.W. Beck is reasonable.

SMUD identifies overhead switches as three-phase gang operates and single-phase switches. The single-phase switch may also be referred to as a solid blade cut out. R.W. Beck provided a count of the overhead three-phase switches and cutouts / fuses. The cutouts / fuses are assumed to be single-phase devices installed in multiples and counted as a single device.

Overhead Switches

	SMUD	Proposed Annexation Area	PG&E
# of OH Switches	6,399	381	567
# of 1 Pole C/O	14,832	1216	1,064
Miles Of OH	3036.8	416	537
# Switches / Mile	1.55	.92	1.06
# of cutouts/Mile	3.6	2.9	1.98

Meters

R.W. Beck identified 40,682 meters in its report. Subsequent information received indicates the correct number of meters is 70,000 in the proposed annexation area. The uncounted meters appear to be associated with the unreported underground services.

Reclosers, Capacitor banks and Voltage Regulators

R.W. Beck identified 189 capacitor banks and 8 voltage regulators. This quantity of capacitors and regulator is consistent for the length of lines. The feeder load profiles performed by R.W. Beck indicate these capacitors and voltage regulators provide the appropriate voltage and power factor support for the system.

Streetlights

R.W. Beck did not inventory the streetlight systems within the proposed annexation area. Subsequent information indicates the streetlight systems are owned by PG&E and would be included in the acquisition. SMUD staff estimates the cost of the streetlights to be $1.8 million.

Underground Distribution Network Layout Estimation

Because PG&E did not provide circuit maps for R.W. Beck to use to determine the underground circuit arrangement, R.W. Beck developed a design that modeled PG&E's current design practices. The R.W. Beck design was based on the inventory of identified pad mounted and subsurface transformers and switches. The exact configuration of the underground system cannot be determined without PG&E's maps for the system, but reasonable estimates have been made. The configuration developed by R.W. Beck identifies the major component locations and provides a sound basis for the system evaluation.

PG&E appears to have used underground systems only within the city limits and isolated subdivisions within the proposed annexation area. If spare facilities such as spare ducts or conductors in the underground system exist, these facilities would not be included in the estimate. Based upon the ratio of secondary to primary underground facilities, the network developed by R.W. Beck correlates well with SMUD's system.

One quantity not identified by R.W. Beck was the number of underground services. After the study was released, PG&E reported it has approximately 24,239 services and 70,000 meters in the proposed annexation area**.** To be conservative, SMUD used the PG&E number in its estimates.

In summary, the R.W. Beck inventory is appropriate. When the quantities are normalized for square miles of territory, numbers of meters, and MW-Hrs, sold, the quantities compare well with the same measures within the whole SMUD distribution system. While the exact sizes of conductors, conduit system, transformers, and substation equipment cannot be known without PG&E's cooperation, the assumptions used by R.W. Beck are reasonable estimates.

Underground Facilities

	SMUD	Proposed Annexation Area
UG Primary	5,530 Miles	259.65 Miles
UG Secondary	2,839.7 Miles	140.37 Miles
UG Service		
Risers	15,314	673
PM XFMRS	19,758	1,489
Subsurface XFMR		966
% Primary to Secondary	51%	54%

While the load flows and voltage drop calculations for the in-ground facilities are unknown, R.W. Beck's estimate is reasonable. The network analysis performed by R.W. Beck would be a good predictor of system operation during peak load periods for voltage drops, flicker and for fault duties. If the area is annexed, SMUD would run load flows and voltage drop calculations to identify any issues that would need to be addressed. As PG&E has similar limits for both overload and voltage drop, it is likely there would be few significant deficiencies.

Separation, Startup, and Ongoing Capital Costs

R.W. Beck's estimated separation and startup costs are in line with staff's estimates. R.W. Beck separation costs included the cost to disconnect from the PG&E transmission and distribution systems and install metering at the remaining connection points. R.W. Beck assumed a severance cost of 1% of the acquisition cost to cover the minor physical system severance. The SMUD scenario modifies the separation points and changes the number of meters to be installed. The typical separation requires removing a jumper or switch blades at the open point. The metering would include the required instrument transformers and meters to monitor power flow for billing.

R.W. Beck's startup cost estimate included substation transformers and circuit breakers to be installed at transmission and distribution facilities. R.W. Beck also included costs in 2013 for additional transmission line capacity. R.W. Beck's startup cost estimate includes installation of new distribution and transmission facilities, obtaining system information and records from PG&E.

The SMUD staff estimate includes the cost of installing two new transformers and transmission and distribution upgrades. The estimate also includes the acquisition and installation of additional communication facilities, costs of incorporating the annexed facilities into SMUD's Geographical Information System, Outage Management System, and SAP.

R.W. Beck estimated ongoing capital requirements to be 1% of acquisition costs. SMUD's approach was to use its 2005 budget to estimate ongoing capital upgrades, which includes costs for cable replacement, cable injection, pole replacements, pole reinforcements, new services (net of Rule 15 and Rule 16 revenues), and local agency improvements. This resulted in a slightly lower annual capital requirement mainly due to R.W. Beck not including developer contributions as an offset to annual capital requirements.

	R.W. Beck (In $ Millions)	**SMUD (In $ Millions)**	**Variance (In $ Millions)**
Separation Cost	*$2*	*$2.3*	*+$0.3*
Startup Cost	*$45**	*$40*	*-$5*
Ongoing Capital	*$5.2*	*$3.3*	*-$1.9*

**Additional $6 million of 2013 to include transmission enhancements such as line re-conductor and capacitor installs*

Summary Valuation of Transmission and Distribution System

R.W. Beck identified three methodologies to establish the value of the annexation area transmission and distribution systems. SMUD staff reviewed and verified these methodologies and recommends use of R.W. Beck's Cost Approach as the most appropriate valuation methodology. The Cost Approach estimates system value based on calculating Original Cost (OC) and Replacement Cost New (RCN) and then applying straight line depreciation to determine Original Cost Less Depreciation (OCLD) and Replacement Cost New Less Depreciation (RCNLD). Depreciation reduces the value of the system due to its age and condition.

SMUD staff validated R.W. Beck's system valuation by confirming inventory quantities, type of construction, condition and age of facilities, and unit costs of the equipment and installation. SMUD staff completed field inspection and condition assessments of distribution and transmission lines as well as independent assessment of real estate and right-of-way costs. SMUD valued real estate and rights-of way at market value where R.W. Beck's real estate costs were not segregated and may have been depreciated. Based on staff's verification and analysis, staff's estimate of the transmission, distribution, and overall system value for the annexation area is as follows:

	RW Beck (In $ Millions)	SMUD (In $ Millions)	Difference (In $ Millions)
Transmission			
OCLD	*$2*	*$3.6*	*+$1.6*
RCNLD	*$17*	*$14.7*	*-$2.3*
Distribution			
OCLD	*$53*	*$80*	*+$27*
RCNLD	*$91*	*$115.7*	*+$24.7*
Total System			
OCLD	*$55*	*$84*	*+$29*
RCNLD	*$108*	*$130*	*+$22*

R.W. Beck's estimates for RCNLD on the transmission system were higher due to higher unit costs and more stranded facilities as compared to an alternative scenario developed by SMUD staff. In addition, higher costs for real estate and rights-of-way were offset by lower costs on transmission equipment resulting in a reduction in transmission RCNLD.

However, SMUD's distribution costs relative to R.W. Beck's are higher. Staff increased the number of meters, service drops, and adjusted for higher cost of some underground facilities including feeders. The changes made by SMUD staff were based on available public information and comparisons of SMUD's system and unit costs. To be conservative and given the limited information provided by PG&E, distribution costs were increased to better reflect SMUD's construction standards and unit costs. These changes in assumed costs and construction standards result in an increase in distribution system OCLD and RCNLD.

Comparison of SMUD Summary to R.W. Beck's Report

SMUD staff developed the table below to compare the costs of the SMUD Scenario with the R.W. Beck Case 4 Scenario. The Case 4 Scenario was chosen because it was the Case that included all three cities and the surrounding portions of Yolo County. To be conservative, SMUD staff used the Replacement Cost New figures even though SMUD believes the total cost for the system will fall somewhere between the Original Cost New Less Depreciation and Replacement Cost New Less Depreciation estimates. It should be noted the Replacement Cost New Less Depreciation figure provides the high-end value for the system.

Description	Beck Case 4 Estimates	SMUD Scenario Estimates	Difference
Substations	$26,815,883	$17,742,143	$9,073,740
Transmission	$54,669,880	$39,134,033	$15,535,847
Feeders			
OH	$11,336,251	$31,948,400	-$20,612,149
UG	$28,050,074	$70,067,895	-$42,017,821
Trenching	$0	$0	$0
R/W's	$0	$557,700	-$557,700
Poles	$23,138,717		$23,138,717
Transformers			
OH	$5,561,388	$5,783,100	-$221,712
PM	$11,082,509	$11,560,600	-$478,091
Low Voltage Circuits	$17,612,278	$14,718,700	$2,893,578
Service Drops			
OH	$13,194,131	$14,554,487	-$1,360,356
UG	$0	$24,181,000	-$24,181,000
Meters	$6,071,543	$5,026,200	$1,045,343
Risers, Switches, Capacitors	$5,506,545	$8,197,059	-$2,690,514
Street Lights	$0	$1,827,518	-$1,827,518
RCN Subtotal	$200,926,524	$245,298,834	-$44,372,310
Less Depreciation	-$98,787,794	-$114,954,261	$16,166,467
RCNLD 2005	$102,138,730	$130,344,573	-$28,205,843
Stranded*	$5,835,134	$0	$5,835,134
Total to RCNLD	$107,973,864	$130,344,573	-$22,370,709
Severance	$2,009,265	$2,351,153	-$341,888
Startup	$45,241,575	$40,049,485	
Ongoing Capital	$5,171,374	$2,655,168	$2,516,206
Legal Costs	$20,000,000	$10,000,000	$10,000,000
Grand Total	$180,396,078	$185,400,379	-$5,004,301

** Stranded facilities are included in SMUD's RCNLD figures*
See Appendix E for details on how staff calculated RCN, RCNLD, OC, and OCLD figures.

The following section provides information on the major differences between the R.W. Beck and SMUD cost estimates before deprecation has been calculated.

Substation Costs – R.W. Beck's cost estimate for substations is higher by $9 million in the RCN value.
Reasons: R.W. Beck included costs for customer-owned substations which will not be acquired. R.W. Beck also used higher costs for substation construction than SMUD's unit cost for substation construction.

Transmission lines – R.W. Beck's cost estimate for transmission lines is higher by $15 million in the RCN value.
Reasons: R.W. Beck included more transmission lines than what the District will need to acquire based on the SMUD Scenario.

Overhead Feeder and Pole Costs – R.W. Beck's cost estimate for overhead feeders is higher by $2.5 million in the RCN value.
Reasons: R.W. Beck had higher unit costs for overhead feeders and poles. SMUD's comparable unit cost includes the cost of the pole and attachment in the cost of the overhead line.

Underground Feeder Costs - R.W. Beck's cost estimate for underground feeders is lower by $42 million in the RCN value.
Reasons: R.W. Beck assumed direct burial of conduit and cable in green field areas. SMUD staff identified cable installed in trenches and some trenches would be in pavement areas resulting in higher unit costs for construction. Since the underground feeder is not visible, SMUD used more conservative numbers.

Low Voltage Circuits – R.W. Beck's cost estimate for low voltage circuits is higher by $2.9 million in the RCN value.
Reasons: R.W. Beck had higher unit cost for installing overhead and underground low voltage secondary circuits than SMUD's unit costs.

Underground Service Drops – R.W. Beck's cost estimate for service drops is lower by $24 million in the RCN value.
Reasons: R.W. Beck did not account for any underground service drops in its inventory or valuation. SMUD staff included 23,684 underground service drops in the cost analysis based on information provided by PG&E.

Streetlights – R.W. Beck's cost estimate for streetlights is lower by $1.8 million in the RCN value.
Reasons: R.W. Beck did not include the streetlight system in its inventory or valuation. PG&E provided a cost for the streetlight system and SMUD included that value in the cost estimate.

Based on SMUD's analysis of the distribution system and R.W. Beck's valuation and facilities assessment, District staff concurs with R.W. Beck's conclusion that there are no technical barriers or obstacles to incorporating the annexation area distribution system into SMUD's distribution system.

SECTION 2
ECONOMIC EVALUATION

ECONOMIC EVALUATION

R.W. Beck's annexation economic analysis studied numerous scenarios and tested many assumptions, finding that under the vast majority of circumstances SMUD annexation would result in positive margins and savings for Yolo customers. Savings ranged from a low of –2.2% to a high of 11.25%, with a "most likely" case that resulted in an 8.5% savings. Given little useful data and cooperation from PG&E, R.W. Beck's analysis made reasonable assumptions on key variables and addressed economic risks through sensitivities. SMUD staff has reviewed R.W. Beck's analysis and believes both the methodology and the assumptions applied were reasonable. However, SMUD staff developed it's own analysis to address alternatives on key assumptions, incorporate SMUD's expected cost of serving Yolo customers, validate important inputs, and evaluate the potential for SMUD's existing customers to benefit from annexation.

SMUD's staff analysis essentially confirms R.W. Beck's results and indicates that annexation could result in an 8% margin relative to PG&E's forecasted average rates. In addition, the analysis also shows that depending on how these margins are divided, current SMUD customers are likely to have both tangible and intangible benefits due to annexation. Although SMUD staff believes positive margins over the entire study period are very likely, relatively high power supply, debt service, and exit fees in the short run could limit the savings prior to 2012. The following describes the key variables and assumptions addressed by the SMUD staff analysis.

Power Supply Costs

Power supply costs include energy, capacity, ancillary services, and renewable energy supplies for the annexed area.

Staff evaluated the costs of supplying energy, capacity reserves, and ancillary services, for base and intermediate load energy through ownership of a new natural gas fired generation plant. Costs for energy during peak load periods are met through long-term purchase power contracts.

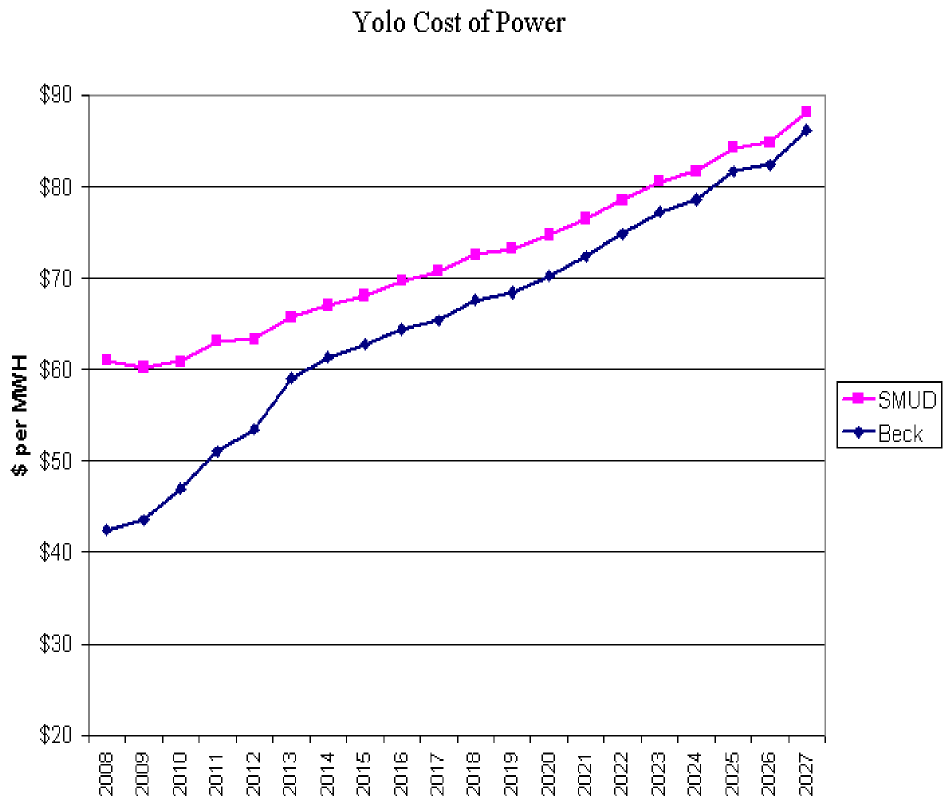
The costs for both new natural gas generation and purchase power contracts are based on generation data included in CPUC Rulemaking 04-04-026 (filed April 22, 2004). Natural gas costs were the same as those used in the R.W. Beck study (see table below) and financing costs included a 30% debt service coverage.

R.W. Beck's Gas Forecast

Northern CA Natural Gas Prices

	Constant 2004 ($/MMBtu)5	Nominal ($/MMBtu)
2004	$ 6.27	$ 6.27
2005	$ 6.41	$ 6.55
2006	$ 5.97	$ 6.24
2007	$ 5.25	$ 5.61
2008	$ 4.50	$ 4.92
2009	$ 4.30	$ 4.81
2010	$ 4.27	$ 4.89
2011	$ 4.35	$ 5.10
2012	$ 4.27	$ 5.12
2013	$ 4.43	$ 5.44
2014	$ 4.45	$ 5.59
2015	$ 4.45	$ 5.71
2016	$ 4.50	$ 5.91
2017	$ 4.49	$ 6.03
2018	$ 4.55	$ 6.26
2019	$ 4.49	$ 6.32
2020	$ 4.51	$ 6.49
2021	$ 4.55	$ 6.70
2022	$ 4.61	$ 6.94
2023	$ 4.66	$ 7.18
2024	$ 4.63	$ 7.30
2025	$ 4.72	$ 7.61
2026	$ 4.64	$ 7.65

The cash flow from the debt service coverage is used to offset future investment requirements in new plant so that over time customer equity accumulates and the fixed cost component of power decreases on an energy basis. Costs also include a $5/MWh renewable adder for 20% of annexation area energy requirements. The resulting power supply costs are higher than those included in the R.W. Beck study, as shown in the figure below.



In addition, power supply costs for PG&E's uncommitted energy also increased to reflect a similar energy purchasing strategy as that used to meet Yolo loads. The impact of these changes in power costs assumptions is to increase the cost of power for both Yolo and PG&E. The increase to PG&E is slightly less because about 30% of PG&E's long term resource mix comes from hydroelectric or nuclear power. Overall, these assumption changes reduced the net present value of annexation savings by approximately $34 million, or about 1.5% relative to R.W. Beck assumptions on power supply costs.

Appendix F contains two tables, SMUD's assumptions regarding power costs for PG&E and SMUD and Assumptions for development of Yolo Power Costs.

Debt Service and Acquisition Costs

Based on SMUD's technical evaluation of the R.W. Beck study and SMUD's independent verification of the value of the Yolo electric system, initial debt issuance included the costs of system acquisition, severance costs, startup costs, litigation costs, and costs of debt issuance. Ongoing capital investments were also included in the year in which they are incurred. Initial capital investments were assumed to be financed entirely with debt issued at the beginning of the year when the assets are acquired. The debt service revenue requirement included debt service coverage, resulting in a revenue requirement of 1.3 times debt service. The additional coverage was retained as equity and used to partially finance capital investments in subsequent years. The remaining balance of subsequent capital additions were financed with tax-exempt debt issued at the beginning of the year in which the capital assets were acquired.

Debt payments for all debt issued was based on level payment of principal and interest with a thirty-year term. An interest rate of 6.25% was used for taxable debt while tax-exempt debt was issued at 5.00%. Overall debt payments based on these assumptions were slightly lower than R.W. Beck's assumed debt service payments and resulted in an increase in the net present value of savings of about $30 million.

Appendix G contains charts showing SMUD's assumptions for debt service and acquisition costs:

Exit Fees

During the California energy crisis in 2000-2001, the California Department of Water Resources (DWR) took over purchasing energy for California's Investor Owned Utilities (IOUs). The energy purchased and the energy contracts signed by the DWR were generally more expensive than subsequent market prices. As a result, any customers no longer requiring IOU energy resources (including long term DWR contracts) were obligated to pay exit fees. The California Public Utilities Commission (CPUC) in Decision 04-12-059 allowed certain customers exemptions from a portion of the exit fees on the basis that their loads were not included in the load forecasts used by the DWR to acquire the long-term energy contracts. R.W. Beck assumed that all of the City of Davis load and 20% of all new load in the annexation territories would receive exemptions from the exit fees.

To be conservative, SMUD staff has assumed that the exit fee exemptions will only apply to 10% of Davis load and to none of the new load in the annexation territories. To the extent that new load or more than 10% of Davis load receives an exit fee exemption, savings between about 2008 and 2012 will increase by approximately $10 million on a net present basis.

SMUD Average Rates and Rate Forecast

SMUD staff developed current and forecasted SMUD average rates for the Yolo jurisdictions to evaluate SMUD's competitiveness with PG&E and to determine the level of surcharge required by Yolo customers.

For residential average rates, SMUD staff relied on 1997 PG&E energy use data made available publicly by PG&E in the late 1990s. The data consists of monthly energy use for all PG&E residential accounts by zip code. Staff used the 1997 billing data to determine the monthly distribution of energy use in the jurisdictional populations by SMUD rate tiers, which is depicted in the table below.

Residential Energy Tier Distribution by Jurisdiction

	Davis			West Sacramento			Woodland		
Month	**Tier 1**	**Tier 2**	**Tier 3**	**Tier 1**	**Tier 2**	**Tier 3**	**Tier 1**	**Tier 2**	**Tier 3**
January	80.7%	8.4%	10.9%	76.1%	9.7%	14.2%	74.4%	10.6%	15.0%
February	84.1%	7.1%	8.8%	78.2%	8.8%	13.0%	80.0%	8.8%	11.1%
March	85.9%	6.4%	7.7%	82.0%	8.1%	9.9%	82.0%	8.3%	9.7%
April	87.5%	5.8%	6.7%	85.4%	7.2%	7.4%	83.6%	7.8%	8.7%
May	86.4%	7.3%	6.3%	89.0%	6.7%	4.2%	81.5%	10.3%	8.1%
June	81.1%	9.7%	9.2%	79.5%	11.3%	9.2%	71.6%	13.9%	14.5%
July	77.6%	11.0%	11.4%	76.8%	12.5%	10.8%	67.8%	15.0%	17.2%
August	76.2%	11.3%	12.4%	72.6%	13.6%	13.8%	65.5%	15.5%	19.0%
September	83.3%	8.8%	7.9%	82.1%	10.2%	7.7%	76.8%	12.4%	10.8%
October	85.8%	7.4%	6.8%	83.0%	9.3%	7.7%	81.5%	10.3%	8.2%
November	86.1%	6.2%	7.8%	82.9%	7.7%	9.4%	79.6%	8.9%	11.5%
December	83.6%	7.5%	8.9%	81.8%	8.3%	10.0%	79.1%	9.3%	11.6%
Annual	***82.8%***	***8.3%***	***8.9%***	***80.3%***	***9.7%***	***10.0%***	***76.0%***	***11.4%***	***12.6%***

These tier shares were applied to sales and multiplied by the appropriate SMUD rates to estimate total revenues. The table below illustrates the results for the City of Davis.

Estimated 2004 Davis Residential Energy and SMUD Revenue

	Estimated Energy Use Allocation				Estimated Revenue @ SMUD Residential Rates				
Month	Tier 1 kWh	Tier 2 kWh	Tier 3 kWh	Total kWh	Tier 1 $	Tier 2 $	Tier 3 $	Customer	Total
January	11,537,919	1,203,051	1,550,816	14,291,786	$920,726	$169,991	$238,360	$134,735	$1,463,812
February	10,923,222	925,241	1,145,048	12,993,511	$871,673	$130,737	$175,994	$134,735	$1,313,139
March	10,440,490	780,649	936,383	12,157,522	$833,151	$110,306	$143,922	$134,735	$1,222,114
April	10,027,521	665,866	769,937	11,463,323	$800,196	$94,087	$118,339	$134,735	$1,147,357
May	11,118,840	944,569	805,090	12,868,500	$962,892	$142,630	$135,497	$134,735	$1,375,753
June	12,177,792	1,459,990	1,380,519	15,018,301	$1,054,597	$220,459	$232,341	$134,735	$1,642,132
July	12,542,719	1,777,899	1,849,515	16,170,134	$1,086,199	$268,463	$311,273	$134,735	$1,800,671
August	12,821,484	1,905,357	2,089,195	16,816,036	$1,110,341	$287,709	$351,611	$134,735	$1,884,396
September	11,696,577	1,236,942	1,114,054	14,047,574	$1,012,924	$186,778	$187,495	$134,735	$1,521,932
October	11,432,178	986,343	909,471	13,327,992	$990,027	$148,938	$153,064	$134,735	$1,426,763
November	10,385,535	743,195	936,342	12,065,072	$828,766	$105,013	$143,916	$134,735	$1,212,430
December	10,908,518	980,030	1,162,772	13,051,319	$870,500	$138,478	$178,718	$134,735	$1,322,431
Totals	*136,012,795*	*13,609,133*	*14,649,141*	*164,271,069*	*$11,341,990*	*$2,003,588*	*$2,370,532*	*$1,616,820*	*$17,332,930*

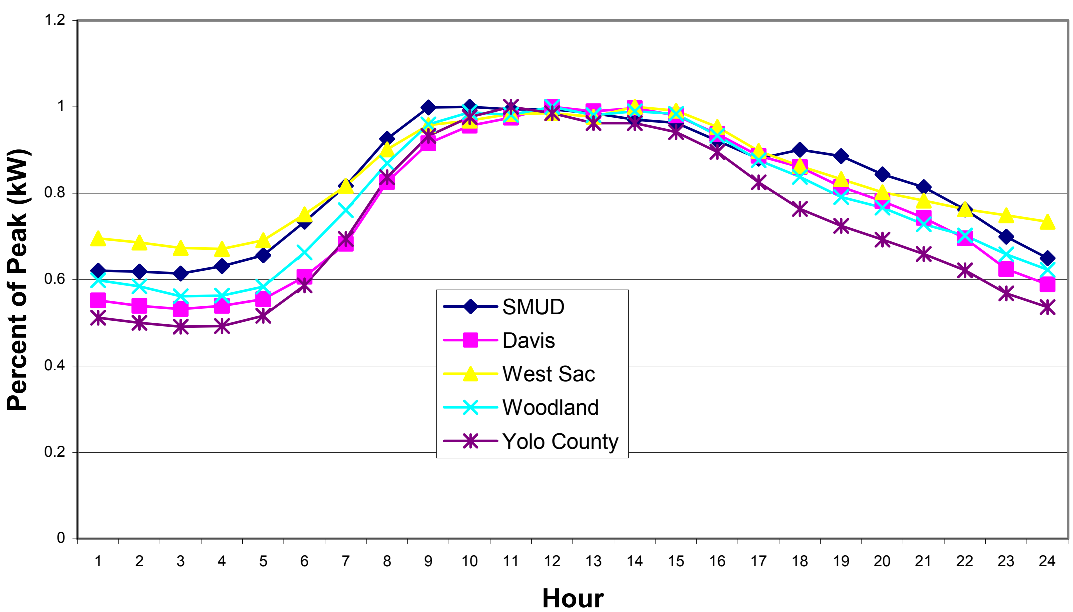
Further adjustments to this revenue were done to reflect Yolo customer's likely participation in low-income and medical equipment programs as well as SMUD's Greenergy program. Adjusted revenues divided by sales determined SMUD's residential average rate by Yolo jurisdiction, which is summarized in the following table.

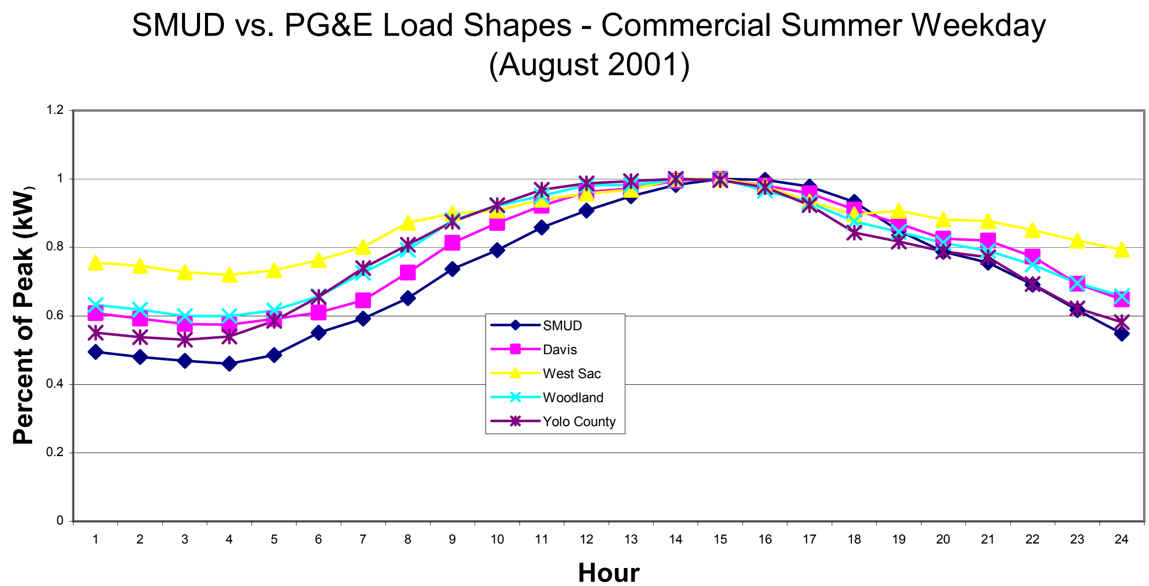
Calculation of Average Residential Rate by City

	W Sac	Davis	Woodland
Adjusted Annual Revenue	$9,458,100	$16,767,763	$13,705,828
Annual Energy Use (kWh)	92,186,964	164,271,069	130,660,087
Interim Average Price	$0.10260	$0.10207	$0.10490
+ Greenergy premium	$0.00039	$0.00039	$0.00039
Final Average Price	***$0.10299***	***$0.10246***	***$0.10529***

For commercial average rates, PG&E did not provide sufficient information to estimate SMUD average rates using Yolo commercial loads. Absent sufficient Yolo commercial usage and demand data, SMUD assumed average rates for Yolo commercial customers would be similar to current SMUD commercial customers. A comparison of PG&E and SMUD commercial loadshapes supported this assumption, which is shown in the graphs below.

SMUD vs. PG&E Load Shapes - Commercial Winter Weekday (January 2001)





The table below summarizes SMUD's commercial average rates. These rates combined with the residential average rates described above were weighted by customer class energy sales by city to arrive at a SMUD system average rate by Yolo jurisdiction. System average rates were forecast based on inflation, expiring long-term contracts, reduced nuclear decommissioning costs, hydro relicensing costs, open position energy costs, natural gas costs, and renewable power supply costs.

Calculation of Average Commercial Rates

Rate Category	Annual Revenue	Annual kWh	Avg Price
Sm Com	$291,826,051	2,747,471,669	$0.10622
Med Com	$139,699,471	1,507,738,803	$0.09265
Large Com	$114,284,419	1,467,076,006	$0.07790
Ag	$5,817,794	60,501,432	$0.09616
Other	$6,344,692	74,431,671	$0.08524

PG&E Average Rates and Rate Forecast

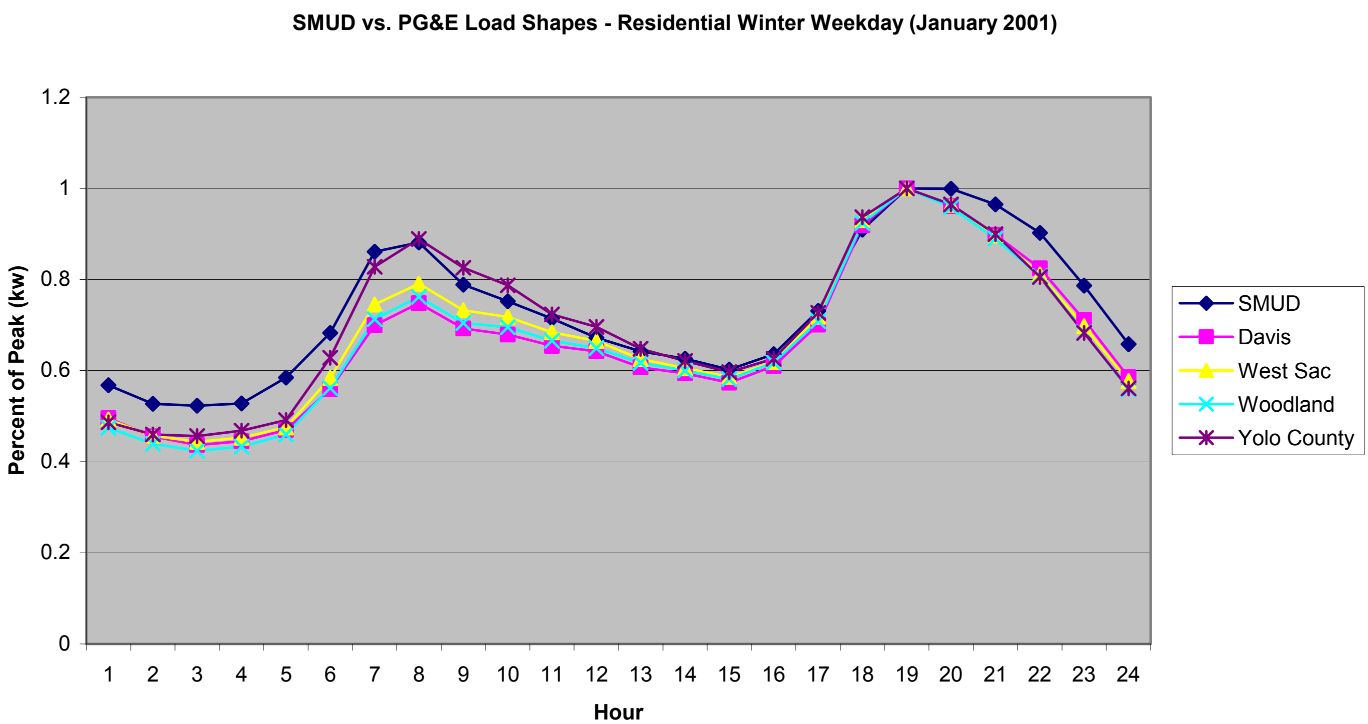
PG&E's average rates are the rates Yolo customers would pay absent annexation by SMUD. Therefore, margin or savings due to annexation is determined by the difference between PG&E's average rates and Yolo customers' costs. To understand these margins over time, a projection of PG&E rates is necessary.

PG&E did not provide a projection of their rates when asked in data requests. Absent a rate projection by PG&E, SMUD staff developed a PG&E rate forecast. The starting point for PG&E's residential rate forecast is shown in the table below and is based on a spreadsheet provided by PG&E.

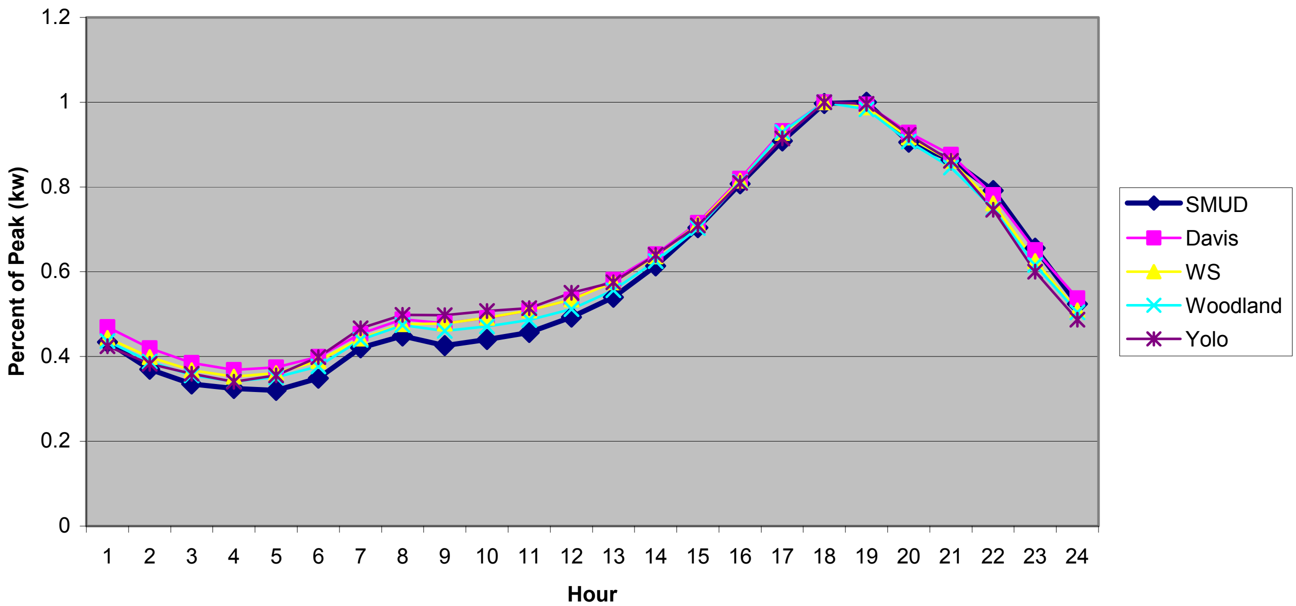
Residential Average Rates by City

City	(kWh)	Avg. Rate
West Sacramento	92,186,964	$0.1254
Davis	164,271,069	$0.1329
Woodland	130,660,087	$0.1342

SMUD staff validated PG&E residential average rates using residential billing data obtained from PG&E in 1997. The billing data included all residential customers in all three cities as of 1997. In addition, SMUD validated the limited residential load shape information provided by PG&E. The following graphs compare PG&E and SMUD residential load shapes.



SMUD vs. PG&E Load Shapes - Residential Summer Weekday (August 2001)



For PG&E's commercial average rates, PG&E provided aggregate commercial average load shapes and commercial average rates relative to the Yolo jurisdictions. Unfortunately, PG&E's aggregate commercial average load shapes were inconsistent with PG&E's commercial class average rates by Yolo jurisdiction. Therefore, SMUD staff used the commercial average rates in PG&E's Phase II General Rate Case ("GRC") filing as the starting point for the PG&E rate forecast. PG&E's Phase II GRC commercial average rates are shown in the table below.

PG&E Class Average Rates (Phase II GRC Proposal)

Customer Class	Average Rates
Agriculture	$0.1170
Small Commercial	$0.1502
Medium Commercial	$0.1237
Large Commercial	$0.1119
Industrial	$0.0970

Upon deriving the PG&E average residential and commercial rates the rates were weighted by sales in each city and customer class to arrive at the overall system average rate by city, as shown in the following table.

System Weighted Average PG&E Rates

City	Average Rates
West Sacramento	$0.1187
Davis	$0.1310
Woodland	$0.1235

PG&E's system average rates were then forecast based on inflation, expiring DWR contracts, new nuclear investments, hydro relicensing costs, PG&E's open position energy costs, QF contract expirations, renewable power supply costs, and natural gas costs. Over the long run the average rate differential between PG&E and SMUD is between 15%-20%.

Operations, Maintenance, and Overhead Costs

Operations, maintenance, and overhead costs are an important factor in determining potential annexation benefits derived from economies of scale, i.e. spreading costs over more usage. R.W. Beck essentially assumed that there would be few economies of scale in annexation. However, SMUD completed a detailed analysis of all Business Units (Customer, Distribution, Energy Supply, and Corporate Services) to develop an estimate of the incremental costs of serving the annexed territory that is discussed below.

Incremental Operation & Maintenance (O&M) to Serve Proposed Annexation Area

The District tracks costs by process and cost element within each of its core business units – Energy Supply, Distribution, and Customer – and for the related service Business Units – Technology, Internal Services, and Corporate Services. The incremental cost to serve annexed customers was developed by each Business Unit by estimating the incremental work impact on each process of the additional customers and service delivery infrastructure, and estimating the resources needed to perform this additional work. Labor resources were costed using 2005 budget activity type rates, which include the cost of salaries and wages, overtime, paid leave, and employee benefits such as health insurance and retirement contributions. Non-labor resources such as contract services, materials, insurance, postage and other direct costs were costed using current purchase cost and contracting rates.

The following table summarizes the incremental O&M costs and new positions to serve the proposed annexation:

O&M INCREASES FROM ANNEXATION
SUMMARY BY BUSINESS UNIT

BUSINESS UNIT	2005 BUDGET ($ Millions)	ANNEXATION INCREASE ($ Millions)	%
Distribution & Transmission	$58.15	$5.70	9.8%
Customer	63.69	3.62	5.7%
Energy Supply-System Ops & Commodity	22.54	0.70	3.1%
Business Services	14.19	1.01	7.1%
Corporate Services	13.41	0.46	3.5%
TOTAL DISTRICT	$171.98	$11.49	6.7%

STAFFING	TOTAL	ANNEXATION INCREASE	%
Distribution	692	45	6.5%
Customer	640	26	4.1%
Energy Supply (excl prod & decom)	148	5	3.4%
Corporate Services	67	1	1.5%
Technology	205	0	0.0%
Internal Services	413	2	0.5%
TOTAL DISTRICT	2,165	79	3.6%

* Excludes Energy Production & Decommissioning

Distribution Business Unit

The Distribution Business Unit estimates ongoing costs of $5.23 million in 2005 dollars for distribution system O&M, and $460,000 for transmission system O&M. These estimates represent 9.7 percent and 10.8 percent, respectively, of the comparable 2005 budget for these costs. The Distribution estimate includes 45 new positions (6.5 percent increase) as follows:

Line Workers	20	60% O&M/40% Capital
Electrician/Tech	3	60% O&M/40% Capital
Troubleshooters	4	100% O&M
Vegetation Planner	2	100% O&M
Cable Locators	2	100% Capital
Designers	2	100% Capital
System Engineer	2	60% O&M/40% Capital
System Operator	2	60% O&M/40% Capital
Meter Technician	3	60% O&M/40% Capital
GIS Specialist	2	60% O&M/40% Capital
Foreman Network	1	100% O&M
Process Supervisor	1	60% O&M/40% Capital
Other	1	100% O&M
TOTAL	45	

Broken down by type of position, field employees are increasing approximately 12 percent, while support positions are increasing only 4 percent. Labor and benefit costs for these incremental position total $3.0 million in O&M and $1.7 million in Capital, which is contained in Annual Capital Upgrades. Incremental costs for contract services labor is estimated at $2.31 million, with the majority of this amount, $1.872 million, designated for tree trimming. Tree trimming labor for the annexed area will be totally by contract, so this increase is 30 percent higher than the 2005 budget. Other direct costs, which are primarily materials, are assumed to increase 12 percent. The non-labor portion of indirect costs, which includes small tools, training, and supplies is assumed to increase $410,000 or 9 percent, proportionate to the amount of O&M labor growth. The budget for internal service and technology allocations is assumed to increase $310,000 or 4.6 percent, to accommodate an increase in vehicle charges and additional personal computers.

The Distribution Business Unit has also estimated an additional $768,000 would be required for first-year startup costs. These costs would be required for substation equipment documentation and evaluation, and for tree trimming costs to bring the annexed area up to SMUD trimming cycle standards.

<u>Customer Business Unit</u>

The Customer Business Unit projects incremental operating costs of $3.62 million, which is 5.7 percent of its 2005 O&M budget. Included in this estimate are 26 new positions (4.1 percent increase) as follows:

Meter Readers	5
Field Services	6
Remittance Processing	3
Contact Center	5
Key Account Reps	5
Residential Services	2
TOTAL	26

The increase in meter readers is only 6 percent higher than current staffing levels, in spite of a 12 percent increase in customers, because of the assumed installation of Encoder Receiver Transmitter (ERT) meters in the annexed territory as part of startup costs. No staffing increases are assumed in the Strategy and Customer Communication segments. The total labor and benefits cost of these new positions is $2.15 million, which is 6.2 percent higher than the 2005 O&M labor budget. This increase is higher than the staffing increase because of positions utilized in Capital and Public Goods. Other direct costs, such as contract services, postage, office supplies and advertising are assumed to increase $1.02 million or 10 percent over the 2005 budget, slightly less than the 12 percent increase in customers. Business unit indirect costs, such as office supplies, contract services, uniforms and training, are projected to increase $70,000 or 5 percent, which is in line with the staffing increase. Technology and internal service costs are estimated to increase $370,000 or 3.1 percent to provide for additional vehicles, personal computers and SAP licenses.

The Customer Business Unit is also anticipating $320,000 of first-year startup costs to provide for 4 additional contact center positions to handle additional calls following the cutover.

Energy Supply Business Unit

The only two segments of Energy Supply to be affected by annexation are System Operations and Reliability (including transmission O&M) and Commodity Procurement and Sales. The other two segments, Energy Production and Decommissioning, will not be affected. The cost of incremental power plant staffing is included in the power supply cost estimates. In the two affected segments, annexation will generate incremental costs of $1.16 million, which is 4.3 percent of the 2005 O&M budget. This figure includes a $330,000 or 15 percent increase in transmission O&M labor, which is the equivalent of 3 positions included in the Distribution Business Unit's new positions. The only other new positions are two positions in System Operations for system protection and operations engineering. Commodity Procurement and Sales does not anticipate any incremental staffing requirements. The projected labor increase of $580,000 from annexation is 4.2 percent of the 2005 budget. Other direct costs such as materials and contract services total $8.16 million in SMUD's 2005 budget, and annexation will increase these costs $480,000 or 5.9 percent. Indirect non-labor costs will increase 30,000 or 4.7 percent, and technology and internal service will increase $70,000 or 2.9 percent. Energy Supply has not estimated any one-time startup costs in O&M.

Corporate and Business Services

Corporate and Business Services are projecting increases of $460,000 or 3.5 percent and $1.01 million or 7.1 percent, respectively, from annexation. The only additional staffing requirement is one new position in Government Affairs. Business Services non-labor costs, which are mostly property and liability insurance, are projected to increase $1.01 million or 10 percent. Corporate Services non-labor costs, such as outside legal and contract services, are projected to increase $310,000 or 10 percent.

Technology and Internal Services

Projected increases in these Business Units is included in the increases discussed previously. The Technology Business Unit is projecting an increase of $350,000 or 1.3% from annexation, primarily in the Customer Business Unit for non-labor costs related to SAP. No new staffing is anticipated. Internal Services is projecting an increase of $410,000 or 1.4 percent, primarily due to additional vehicles and substation security. One new position is anticipated in Transportation and one in Asset Protection.

In summary, based on SMUD's analysis, there are significant savings due to economies of scale that should reach about $91 million on a net present value basis relative to the costs included in the R.W. Beck study.

Overall Impact of SMUD Analysis

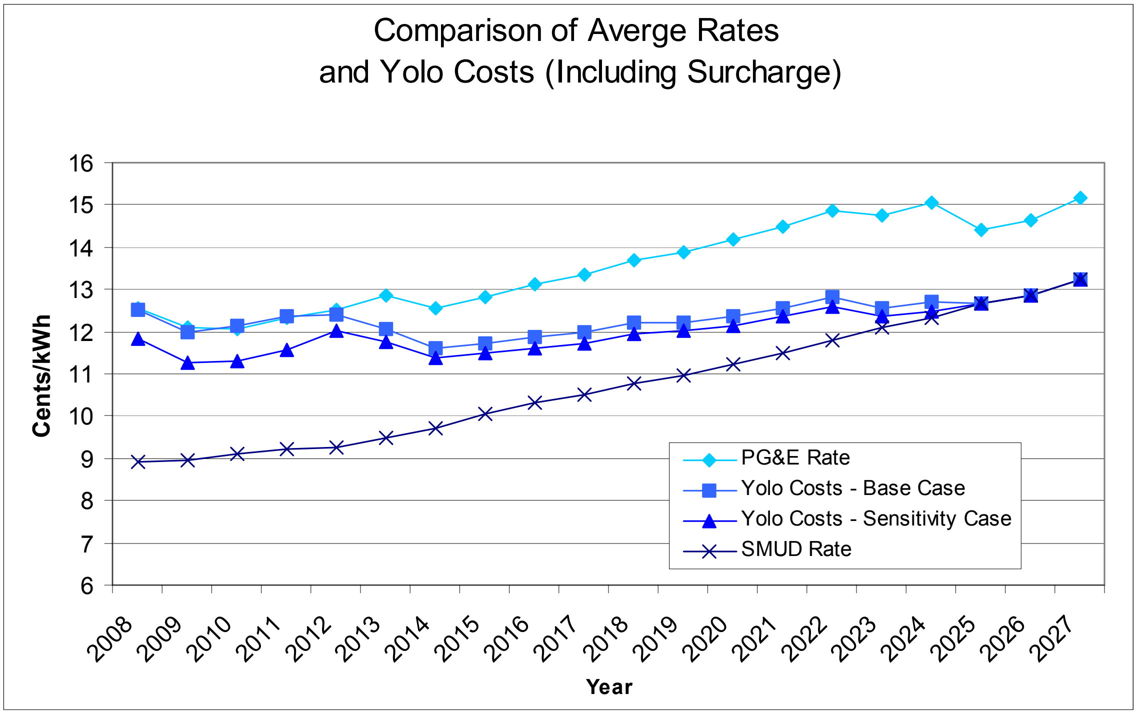
Based on the assumptions and analysis SMUD conducted, there are significant savings over the long run. The savings in the early years rates are modest due to exit fees, the levelized recovery of debt service costs, and relatively high power market and natural gas prices. Over the long run these costs are mitigated (mainly through increases in customer equity) resulting in a relatively larger share of savings in the latter years. Overall, SMUD expects an average of 8% savings over a 20-year period on a net present value basis.

In addition to SMUD's base case analysis that produces an 8% savings ($180 million NPV) over 20 years, SMUD also developed a sensitivity analysis to evaluate power supply, exit fee, and debt service options that would help mitigate annexation costs. SMUD's sensitivity analysis made the following assumptions:

- ***Power Supply:*** Rather than assuming that all Yolo energy sales come from a combination of new customer owned generation and peaking contracts, a portion of the off-peak Yolo energy sales were assumed to come from Consumnes Power Plant ("CPP") at CPP's marginal cost of energy. In the first five years of annexation (2008 - 2013), SMUD expects that CPP will have surplus energy to sell in the off-peak hours. Rather than selling off-peak energy at market prices and incurring CAISO fees for delivery, a portion of CPP's energy is assumed to be sold to Yolo area customers, reducing Yolo customer's cost of energy.
- ***Debt Service Costs:*** SMUD has sufficient annual cash flow to invest in the Yolo electric system to avoid financing the acquisition with taxable debt. If SMUD were to invest cash flow in the Yolo electric system, cash flow would not be available to invest in SMUD's existing capital requirements. However, new tax-exempt debt could be issued to cover current capital needs. The net effect of investing existing cash flow in the Yolo electric system is to displace taxable debt with tax-exempt financing, lowering the cost of SMUD's debt service. In addition, SMUD's existing debt portfolio includes some variable rate debt at lower cost than fixed rate debt. Assuming that SMUD's new financing to cover the value of the Yolo assets will include some variable rate debt further lowers SMUD's debt service costs.
- ***Exit Fees:*** If annexation moves forward, SMUD will pursue acquiring all available exit fee exemptions for as much of Yolo customer's load as possible. Assuming more than 10% of Davis load and some new load will ultimately be exempt from a portion of the exit fees lowers the cost of serving the Yolo jurisdiction.

Given these changes, SMUD estimates that the net present value of savings over 20 years increases to about $240 million and that PG&E's rates will exceed SMUD's cost of serving Yolo customers by more than 3% every year.

SMUD staff calculated total annexation benefits as the difference between PG&E rates and SMUD's cost of serving Yolo customers. PG&E's rates are the rates Yolo customers would otherwise pay absent annexation, so any rates below PG&E's generates benefits for use in paying off Yolo costs or for sharing between Yolo jurisdictions, customer classes, or with SMUD's existing customer base. To the extent SMUD's Yolo cost of service is below PG&E's rates, benefits will accrue. SMUD staff estimates the net present value of the benefits over the 20-year period of the study to be about $180 million in the Base Case (see Appendix D), and the NPV benefits over 20 years to be about $240 million in the Sensitivity Case (see graph below)



Benefits accrue in either case because SMUD's Yolo cost of service is below PG&E rates over time. The primary reasons SMUD can serve Yolo County customers at a lower cost than PG&E are:

1) There are significant economies of scale in annexing the Yolo customers. SMUD's customer base will expand by 12% while costs are estimated to expand by only 6.7%. Please see the section of this report that discusses the O&M and A&G cost savings for more information.

2) Municipal financing and ownership of assets, including generation, distribution and transmission facilities is cheaper in the long run because SMUD uses cash flow produced by these assets to pay off the assets rather than paying shareholders.

3) Exit fees diminish over time but PG&E's power costs continue to increase as a result of expiring long term contracts, investments in Diablo Canyon, hydroelectric relicensing, and renewable power costs.

SMUD staff expects that over time the Yolo customer cost of service will slowly decrease until a surcharge above SMUD's existing rates would no longer be required. The size of the surcharge, how long the surcharge may be in place, and how the benefits of the Yolo annexation will be divided will be decided by the SMUD Board.

Additional Sensitivities

SMUD staff reviewed the assumptions in this study that, if changed, could significantly change the 20-year net present value and/or the rate margin in the first five years. Acquisition price, natural gas prices, exit fees and interest rates were identified. Following is a discussion of each sensitivity.

Acquisition Cost – Each $10 million change results in a change in net present value of .5% and a .5% change in the rate differential during the first five years. The potential range of this input is limited by the extensive review of the electric facilities in the annexation area. In addition, study costs were compared to benchmarks such as SMUD investment per customer, PG&E's market to book and market to book of electric utility mergers. The range of uncertainty related to acquisition price is well within the potential benefits.

Gas Price – For each increase in gas prices of $1/MMBtu over the entire study period, the net present value is decreased by 1.75% and the rate margin in the first five years is reduced by 2.5%. The most significant mitigation is that increases in gas prices will also increase PG&E rates, although not at the same rate (as discussed in the power supply section). Price spikes in gas prices can be mitigated through a portfolio of gas contracts that expire at staggered dates.

Interest Rates – Although higher interest rates could increase the annual cost of annexation, a permanent rise in rates would result in increases in PG&E's capital cost that would offset much of the increase in the short run and actually increase the margin in the long run. If the increase were transitory, the increased cost would be limited to the call period on initial bonds. The short-term spike in interest rates would have to be over 200 basis points before it would have a significant impact on short-term margins.

Existing SMUD Customer Benefits

SMUD has completed an analysis to determine the benefits to existing SMUD customers that could accrue as a result of annexation. SMUD reviewed cash contributions that are currently made by existing SMUD customers as well as cash contributions expected to be made by Yolo customers. Generally, while Yolo customers' energy is expected to cost more than current SMUD customers' energy costs (for study purposes, no allocation to Yolo customers of existing low cost hydro or other resources has been assumed), the economies of scale savings on O&M costs more than makes up the difference. In addition, Yolo customers' total debt service costs are expected to be lower than SMUD customers and decommissioning costs can be spread over more usage. Based on SMUD's analysis, Yolo area customers are expected to provide cash contributions in excess of existing SMUD customers throughout the study period as depicted in the table below. Yolo's annual cash contributions would equal about $20 - $25 million over the 20 years of the study. Expected positive cash contributions by Yolo customers beyond that of SMUD's existing customers will help compensate SMUD's existing customers for providing Yolo customers rate certainty during the first five years of annexation.

Comparison of Cash Contribution

	2008 - 2012		2013 - 2017	
$/MWH	SMUD	YOLO	SMUD	YOLO
Customer Revenue	98.72	96.35	98.72	96.35
Power Supply	44.02	54.19	50.89	61.27
O&M + Public Good	21.66	11.81	22.4	11.93
Decomissioning	0.83	0	0.43	0
Debt Service	16.25	13.06	15.04	12.26
Cash Contribution	15.96	17.29	9.96	10.89

In addition to the cash contributions made by Yolo customers, there are additional benefits of more load over which SMUD's power portfolio can be diversified and economies of scale that should continue to accrue over time as a result of annexation.

APPENDIX A

Load Flow Tables

N-1 Outages - Thermal Loading on 2008 Base Annexation Option

FROM kV	TO kV	CK	OUTAGED CIRCUIT	Rating Norm	Rating Emerg	% LOADING Norm	% LOADING Emerg
HURLEY S 230	HURLEY 115	1	OUT: ELVERTAS-NORTHCTY 115 kV #1	200	200	104	104
HURLEY S 230	HURLEY 115	1	OUT: EAST CTY-HEDGE 115 kV #1	200	200	100	100
HURLEY S 230	HURLEY 115	1	OUT: PROCTER -HEDGE 230 kV #1	200	200	98	98
HEDGE 115	SOUTHCTY 115	2	OUT: HEDGE -SOUTHCTY 115 kV #1	500	580	113	97
HEDGE 115	SOUTHCTY 115	1	OUT: HEDGE -SOUTHCTY 115 kV #2	500	580	113	97
HURLEY S 230	HURLEY 115	1	OUT: ELVWODLD-WOODLD 115 kV #1	200	200	96	96
HURLEY S 230	HURLEY 115	1	OUT: SOUTHCTY-STA. B 115 kV #1	200	200	94	94
EAST CTY 115	HEDGE 115	1	OUT: SOUTHCTY-STA. B 115 kV #1	760	880	107	92
HURLEY S 230	HURLEY 115	1	OUT: CARMICAL-HURLEY S 230 kV #1	200	200	92	92
HURLEY 115	DPWT_TP2 115	1	OUT: NORTHCTY-W.SCRMNO 115 kV #1	442	612	127	92
HURLEY S 230	HURLEY 115	1	OUT: WHITEROK-HEDGE 230 kV #1	200	200	90	90
HEDGE 115	SOUTHCTY 115	1	OUT: EAST CTY-HEDGE 115 kV #1	500	580	102	88
HEDGE 115	SOUTHCTY 115	2	OUT: EAST CTY-HEDGE 115 kV #1	500	580	102	88
NORTHCTY 115	W.SCRMNO 115	1	OUT: HEDGE -BRKRJCT 115 kV #1	442	507	99	86
WOODLD 115	ELVWODLD 115	1	OUT: ELVERTAS-MOBILCHE 115 kV #1	628	738	101	86
SOUTHCTY 115	STA. B 115	1	OUT: EAST CTY-HEDGE 115 kV #1	760	880	95	82
NORTHCTY 115	W.SCRMNO 115	1	OUT: ELVWODLD-WOODLD 115 kV #1	442	507	94	82
NORTHCTY 115	W.SCRMNO 115	1	OUT: ELVERTAS-MOBILCHE 115 kV #1	442	507	93	81
EAST CTY 115	HEDGE 115	1	OUT: ELVERTAS-NORTHCTY 115 kV #1	760	880	93	80
ELVERTAS 115	MOBILCHE 115	1	OUT: ELVWODLD-WOODLD 115 kV #1	628	738	94	80
EAST CTY 115	HEDGE 115	1	OUT: HEDGE -BRKRJCT 115 kV #1	760	880	90	78
HURLEY 115	DPWT_TP2 115	1	OUT: HURLEY -NORTHCTY 115 kV #2	442	612	97	70
HURLEY 115	DPWT_TP2 115	1	OUT: HEDGE -BRKRJCT 115 kV #1	442	612	94	68
HURLEY 115	DPWT_TP2 115	1	OUT: ELVWODLD-WOODLD 115 kV #1	442	612	93	67
HEDGE 115	BRKRJCT 115	1	OUT: ELVWODLD-WOODLD 115 kV #1	447	607	91	67

N-2 Outages - Thermal Loading on 2008 Based Annexation Option

FROM kV	TO kV	CKT	OUTAGED CIRCUITS (N-2)	Rating Norm	% LOADING Emerg	Norm	Emerg
NORTHCTY 115	W.SCRMNO 115	1	OUT: ELV-MOBILCHE & ELV-WOODLD	442	507	150	131
HURLEY 115	DPWT_TP2 115	1	OUT: ELV-MOBILCHE & ELV-WOODLD	442	612	129	93
HEDGE 115	BRKRJCT 115	1	OUT: ELV-MOBILCHE & ELV-WOODLD	447	607	147	108
HURLEY S 230	HURLEY 115	1	OUT: ELV-MOBILCHE & ELV-WOODLD	200	200	106	106
WDLND_BM 115	HUNT 115	1	OUT: ELV-MOBILCHE & ELV-WOODLD	628	738	119	101
DAVIS 115	HUNT 115	1	OUT: ELV-MOBILCHE & ELV-WOODLD	628	738	119	101
WDLND_BM 115	WOODLD 115	1	OUT: ELV-MOBILCHE & ELV-WOODLD	628	738	116	99
ELVERTAS 115	NORTHCTY 115	1	OUT: ELV-MOBILCHE & ELV-WOODLD	760	880	106	92
BRKRJCT 115	DAVIS 115	1	OUT: ELV-MOBILCHE & ELV-WOODLD	633	743	102	87
DPWTR_TP 115	W.SCRMNO 115	1	OUT: ELV-MOBILCHE & ELV-WOODLD	760	880	100	86
DPWTR_TP 115	DAVIS 115	1	OUT: ELV-MOBILCHE & ELV-WOODLD	760	880	98	85

N-1 Outages - Thermal Loading on 2013 Base Annexation Option

FROM kV	TO kV	CK	OUTAGED CIRCUIT (N-1)	Rating Norm	Rating Emerg	% LOADING Norm	% LOADING Emerg
HURLEY 115	DPWT_TP2 115	1	OUT: NORTHCTY - W.SCRMNO 115kV #1	442	612	140	101
NORTHCTY 115	W.SCRMNO 115	1	OUT: HEDGE -BRKRJCT 115 kV #1	442	507	109	95
WOODLD 115	ELVWODLD 115	1	OUT: ELVERTAS-MOBILCHE 115 kV #1	628	738	109	93
NORTHCTY 115	W.SCRMNO 115	1	OUT: ELVERTAS-MOBILCHE 115 kV #1	442	507	103	90
NORTHCTY 115	W.SCRMNO 115	1	OUT: ELVWODLD-WOODLD 115 kV #1	442	507	102	89
ELVERTAS 115	MOBILCHE 115	1	OUT: ELVWODLD-WOODLD 115 kV #1	628	738	102	87
HURLEY 115	DPWT_TP2 115	1	OUT: HURLEY -NORTHCTY 115 kV #2	442	612	106	77
HURLEY 115	DPWT_TP2 115	1	OUT: ELVWODLD-WOODLD 115 kV #1	442	612	101	73
HEDGE 115	BRKRJCT 115	1	OUT: NORTHCTY - W.SCRMNO 115kV #1	447	607	91	67

N-2 Outages - Thermal Loading on 2013 Base Annexation Option

FROM kV	TO kV	CKT	OUTAGED CIRCUITS (N-2)	Rating		% LOADING	
				Norm	Emerg	Norm	Emerg
NORTHCTY 115	W.SCRMNO 115	1	ELV-MOBILCHE & ELV-WOODLAND	442	507	167	146
HEDGE 115	BRKRJCT 115	1	ELV-MOBILCHE & ELV-WOODLAND	447	607	163	120
HURLEY S 230	HURLEY 115	1	ELV-MOBILCHE & ELV-WOODLAND	200	200	115	115
WDLND_BM 115	HUNT 115	1	ELV-MOBILCHE & ELV-WOODLAND	628	738	133	113
DAVIS 115	HUNT 115	1	ELV-MOBILCHE & ELV-WOODLAND	628	738	133	113
WDLND_BM 115	WOODLD 115	1	ELV-MOBILCHE & ELV-WOODLAND	628	738	130	111
HURLEY 115	DPWT_TP2 115	1	ELV-MOBILCHE & ELV-WOODLAND	442	612	143	103
ELVERTAS 115	NORTHCTY 115	1	ELV-MOBILCHE & ELV-WOODLAND	760	880	115	99
BRKRJCT 115	DAVIS 115	1	ELV-MOBILCHE & ELV-WOODLAND	633	743	114	97
DPWTR_TP 115	W.SCRMNO 115	1	ELV-MOBILCHE & ELV-WOODLAND	760	880	111	96
HEDGE 230	HEDGE 115	6	ELV-MOBILCHE & ELV-WOODLAND	200	200	95	95
DPWTR_TP 115	DAVIS 115	1	ELV-MOBILCHE & ELV-WOODLAND	760	880	109	94
HEDGE 230	HEDGE 115	2	ELV-MOBILCHE & ELV-WOODLAND	120	120	92	92
HEDGE 230	HEDGE 115	4	ELV-MOBILCHE & ELV-WOODLAND	150	150	92	92

Low Voltage: N-2 Elverta - Woodland 115kV Lines on 2008 Base Annexation Option

BUS	Vdiff	Vbase	Voutage	N-2 Outage
MOBILCHE 115.0	0.0875	0.9999	0.9124	ELV-MOBILCHE & ELV-WOODLAND
WDLND_BM 115.0	0.0838	0.9996	0.9158	ELV-MOBILCHE & ELV-WOODLAND
WOODLD 115.0	0.0863	0.9987	0.9124	ELV-MOBILCHE & ELV-WOODLAND
DAVIS 115.0	0.0626	1.0066	0.9439	ELV-MOBILCHE & ELV-WOODLAND
HUNT 115.0	0.0649	1.0059	0.941	ELV-MOBILCHE & ELV-WOODLAND
BRKR SLG 115.0	0.0549	1.0115	0.9566	ELV-MOBILCHE & ELV-WOODLAND

APPENDIX B

Rights-of-Way Costs

Table 2. Revised Summary of Right-of-Way Costs

	From	To	Length-Miles	Structure	Miles	ROW Costs	Location	Comments
Line 1	West Sacramento	Close to Deepwater Tap	1.04	Steel Poles			Yolo County	See line 3
	Close to Deepwater Tap	Close to Brighton	12.82	Lattice			Yolo County	
					1.2	$ 79,200.00	Yolo County	
					1.31	$ 456,456.00	Sacramento County	
					1.96	$ 455,840.00	Sacramento County	
					0.71	$ -	Sacramento County	
					0.71	$ 834,460.00	Sacramento County	
					1.18	$ 414,546.00	Sacramento County	
	Close to Brighton	Rio Oso	29.60	Lattice	0	$ -	no estimate	
					7.07	**$ 2,240,502.00**		
Line 2	West Sacramento	Deepwater Tap2	1.04	Steel Poles			Yolo County	see line 3
	Deepwater Tap2	Brighton	12.82	Lattice			Yolo County	see line 1
Line 3	Davis	Deepwater Tap1	10.89	Wood Pole				
					1.6	$ -	Yolo County	
					0.7	$ 20,790.00	Yolo County	
					2	$ 17,162.00	Yolo County	
					4.8	$ 5,068.00	Yolo County	
					9.1	**$ 43,020.00**		
	Deepwater Tap1	West Sacramento	1.76	Wood Pole	**1**	**$ 74,000.00**	Yolo County	ROW shared with lines 1 and 2
						$ 117,020.00		
Line 4a	Deepwater Tap1	PO Tap	1.37	Steel Poles			Yolo County	along public easements and railroad
	PO Tap	Deepwater (SW 315-NC)	1.02	Steel Poles			Yolo County	along public easements
Line 4b	Deepwater Tap2	Deepwater (SW 325-NC)	2.39	Steel Poles			Yolo County	along public easements and railroad
Line 5	PO Tap	Post Office	0.66	Wood Pole			Yolo County	along public easements

Line 6	Davis	Hunt Tap	1.09	Wood Pole	**1.2**	**$ 1,029,600.00**	Yolo County	along railroad
	Hunt Tap	Woodland BioMass Tap	9.04	Wood Pole	12.4	$ -	Yolo County	along public easement
	Woodland BioMass Tap	Woodland	1.50	Wood Pole				along public easement
Line 6a	Hunt Tap	Hunt	0.06	Wood Pole			Yolo County	along public easement
Line 6b	Woodland BioMass Tap	Woodland BioMass	0.84	Wood Pole			Yolo County	along railroad
Line 7a	Davis	Barker Jct	9.85	Wood Pole				
					1.9	$ -	Yolo County	
					1.9	$ 303,582.00	Yolo County	
					0.5	$ -	Yolo County	
					1.9	$ 3,167.00	Yolo County	
					5.3	$ -	Yolo County	
					11.5	**$ 306,749.00**		
Line 7b	Barker Jct	Brighton	18.46	Lattice				
					3.9	$ 8,236.00	Yolo County	
					4.3	$ 29,515.00	Yolo County	
					1.97	$745,387.00	Sacramento County	
					0.23	$ 316,750.00	Sacramento County	
					0.77	$ 203,300.00	Sacramento County	
					1.84	$ 583,800.00	Sacramento County	
					0.73	$ 192,700.00	Sacramento County	
					1.87	$ 297,330.00	Sacramento County	
					2.51	$ 397,620.00	Sacramento County	
					18.12	**$ 2,774,638.00**		

APPENDIX C

Substation Unit Costs

Substation Cost Estimates

In order to compare Beck's cost estimates, SMUD staff has created unit costs. These unit costs have been applied to the various substation configurations to determine the value of the existing substation and to determine the costs for new substation and substation additions.

Substation Unit Costs

Table C-1 shows the unit costs used in the estimates for verifying Beck's costs.

Each circuit breaker bay consists of a circuit breaker and isolating disconnect switches on either side of the circuit breaker. Each bay requires foundations and supporting steel structures. In radial bus and ring bus designs, one set of protective relays can be paired with each circuit breaker. The price for circuit breakers and circuit switchers is based on recent purchases and vendor information.

SMUD typically purchases 20 MVA, 69/12 kV transformers for its substations. Costs for these transformers have run from approximately $250,000 to $330,000. The most recent prices have been above $300,000. A couple of years ago, SMUD purchased a 40 MVA, 115/21 kV transformer for approximately $450,000. The cost per MVA for these transformers is between $11,000 and $17,000. A cost of $16,000 was used for all distribution power transformers.

A different value is used for the cost of bulk power transformers. SMUD recently purchased a 224 MVA 230/69 kV transformer for approximately $1,400,000. The highest bid for this transformer was approximately $2,120,000. This works out to a range of $6,250 to $9,500 per MVA. To account for possible bid variations and escalation costs, a cost of $8,000 per MVA was used.

Labor Costs

Table C-2 shows the costs for substation design and construction.

Table C-1. Substation Unit Costs

Description	Number	Unit	Unit Cost	Extended Cost
115 kV Circuit Breaker Bay				
circuit breaker	1	each	$ 80,000	$ 80,000
disconnect	2	each	$ 10,000	$ 20,000
protective relays	1	each	$ 50,000	$ 50,000
structure & foundation	1	each	$ 40,825	$ 40,825
Labor				$ 105,920
total				**$ 296,745**
230 kV Circuit Breaker Bay				
circuit breaker	1	each	$ 100,000	$ 100,000
disconnect	2	each	$ 16,000	$ 32,000
protective relays	1	each	$ 50,000	$ 50,000
Structure & foundation	1	each	$ 40,825	$ 40,825
Labor				$ 105,920
total				**$ 328,745**
Substation Transformer, 6 MVA				
transformer	6	MVA	$ 16,000	$ 96,000
foundation	1	each	$ 50,000	$ 50,000
Labor				$ 43,520
total				**$ 189,520**
Substation Transformer, 10 MVA				
transformer	10	MVA	$16,000	$ 160,000
foundation	1	each	$ 62,500	$ 62,500
Labor				$ 37,760
total				**$ 260,260**
Substation Transformer, 12.5MVA				
transformer	12.5	MVA	$ 16,000	$ 200,000
foundation	1	each	$ 75,000	$ 75,000
Labor				$ 43,520
total				**$ 318,520**
Substation Transformer, 20 MVA				
transformer	20	MVA	$ 16,000	$ 320,000
foundation	1	each	$ 50,000	$ 50,000
Labor				$ 43,520
total				**$ 413,520**
Substation Transformer, 30 MVA				
transformer	30	MVA	$ 16,000	$ 480,000
foundation	1	each	$ 62,500	$ 62,500
Labor				$ 43,520
total				**$ 586,020**
Substation Transformer, 40 MVA				
transformer	40	MVA	$ 16,000	$ 640,000
foundation	1	each	$ 75,000	$ 75,000
Labor				$ 53,760
total				**$ 768,760**
Substation Transformer, 200 MVA				
transformer	200	MVA	$ 8,000	$ 1,600,000
foundation	1	each	$ 150,000	$ 150,000
Labor				$ 53,760
total				**$ 1,803,760**
12 kV Outdoor Circuit breaker Position				
12kV Breaker, protection, disconnects	1	set	$ 30,000	$ 30,000
12kV Circuit Breaker Pad and Structure	1	set	$ 10,000	$ 10,000
labor				$ 10,240
				$ 50,240
Protective Relaying-one bay				
Relay Panel	1	each	$ 50,000	$ 50,000
Labor				$ 75,520
total				**$ 125,520**

Table C-2. Time and Labor Costs for Substation Construction

	Work Activity	Number of weeks	Costs
Construction			
	Transmission transformer erection	3	$ 30,720.00
	Distribution transformer	2	$ 20,480.00
	Circuit breaker	1	$ 10,240.00
	12kV switchgear	4	$ 40,960.00
	Relay panel	4	$ 40,960.00
Engineering/Design			
	Transformer erection	6	$ 17,280.00
	Circuit breaker	3	$ 8,640.00
	12kV switchgear	4	$ 11,520.00
	Relay panel	12	$ 34,560.00
	Structure & foundation	4	$ 11,520.00

APPENDIX D

SMUD Base Case

SMUD BASE CASE - ALL REGION - BUILD OPTION

Municipalization Evaluation Model: Replacement Cost New Less Depreciation - Straight Line Approach / Tranmisssion Build Option

		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
	CUSTOMERS/LOAD																				
	Customers	80,227	81,634	83,066	84,477	85,900	87,332	88,784	90,258	91,724	93,225	94,761	96,333	97,941	99,351	100,792	102,131	103,497	104,892	106,315	107,767
2,3	Load (MWh)																				
	Bundled only																				
	Residential	486,749	495,163	503,767	512,279	520,896	529,594	538,427	547,408	556,276	565,342	574,611	584,086	593,774	602,426	611,258	619,491	627,885	636,444	645,170	654,069
	Commercial																				
	Small	153,284	156,055	159,058	162,089	165,240	168,473	171,809	175,241	178,635	182,112	185,673	189,321	193,059	196,471	199,962	203,246	206,601	210,031	213,535	217,118
	Medium	386,249	393,419	401,429	409,592	418,190	427,083	436,321	445,875	455,279	464,921	474,806	484,941	495,333	504,960	514,819	524,148	533,691	543,453	553,442	563,661
	Large	201,230	205,151	209,792	214,606	219,789	225,220	230,925	236,874	242,839	248,963	255,251	261,705	268,332	274,463	280,750	286,695	292,784	299,021	305,410	311,955
	Agricultural	45,042	45,774	46,541	47,312	48,106	48,918	49,749	50,600	51,373	52,159	52,960	53,774	54,603	55,444	56,300	57,123	57,959	58,810	59,674	60,553
	Other	7,390	7,524	7,665	7,806	7,952	8,100	8,252	8,408	8,561	8,718	8,879	9,043	9,212	9,365	9,521	9,668	9,818	9,971	10,127	10,287
	Direct Access	82,586	84,453	86,831	89,346	92,122	95,074	98,218	101,532	104,588	107,736	110,979	114,319	117,760	121,223	124,787	128,281	131,872	135,565	139,361	143,263
	Total Load at Meter	1,362,531	1,387,538	1,415,085	1,443,029	1,472,294	1,502,461	1,533,701	1,565,936	1,597,552	1,629,952	1,663,157	1,697,190	1,732,073	1,764,352	1,797,397	1,828,651	1,860,611	1,893,294	1,926,720	1,960,906
	Load Served (MWh)	1,279,945	1,303,085	1,328,253	1,353,684	1,380,172	1,407,387	1,435,483	1,464,404	1,492,964	1,522,216	1,552,178	1,582,871	1,614,312	1,643,130	1,672,610	1,700,370	1,728,738	1,757,729	1,787,359	1,817,643
4	Losses @8.0% (MWh)	102,396	104,247	106,260	108,295	110,414	112,591	114,839	117,152	119,437	121,777	124,174	126,630	129,145	131,450	133,809	136,030	138,299	140,618	142,989	145,411
	Energy Requirement	1,382,340	1,407,332	1,434,514	1,461,978	1,490,586	1,519,978	1,550,321	1,581,556	1,612,401	1,643,993	1,676,353	1,709,500	1,743,457	1,774,580	1,806,419	1,836,400	1,867,037	1,898,348	1,930,348	1,963,055
5	Conventional Energy	1,188,813	1,182,159	1,176,301	1,169,583	1,192,469	1,215,982	1,240,257	1,265,245	1,289,921	1,315,194	1,341,082	1,367,600	1,394,766	1,419,664	1,445,135	1,469,120	1,493,630	1,518,678	1,544,278	1,570,444
6	Renewable Energy	193,528	225,173	258,212	292,396	298,117	303,996	310,064	316,311	322,480	328,799	335,271	341,900	348,691	354,916	361,284	367,280	373,407	379,670	386,070	392,611
	PRICES ($/MWh)																				
7,8	Market Electricity	$ 60.43	$ 59.66	$ 60.32	$ 61.95	$ 62.18	$ 64.63	$ 65.83	$ 66.89	$ 68.48	$ 69.53	$ 71.33	$ 71.93	$ 73.40	$ 75.14	$ 77.17	$ 79.14	$ 80.22	$ 82.80	$ 83.35	$ 86.58
9	Renewable Prices	66.48	65.63	66.36	68.14	68.40	71.09	72.41	73.58	75.33	76.48	78.47	79.12	80.74	82.65	84.88	87.05	88.25	91.08	91.68	95.23
10	DWR Bond Repayment	27.00	27.00	27.00	27.00	27.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	O&M and A&G	11.70	10.97	11.02	11.05	11.08	11.11	11.13	11.15	11.18	11.21	11.24	11.27	11.30	11.35	11.39	11.46	11.52	11.58	11.64	11.70
12	Ancillary Services	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13,14	**REVENUES ($000)**																				
	Residential	$ 46,944	$ 48,048	$ 49,706	$ 51,101	$ 52,228	$ 54,462	$ 56,678	$ 59,594	$ 62,086	$ 64,438	$ 67,176	$ 69,494	$ 72,264	$ 75,082	$ 78,114	$ 81,112	$ 83,795	$ 87,238	$ 89,848	$ 93,785
	Commercial / Industrial																				
	Small	15,140	15,508	16,072	16,563	16,975	17,751	18,528	19,537	20,414	21,251	22,220	23,056	24,047	25,058	26,148	27,229	28,210	29,454	30,422	31,848
	Medium	33,068	33,890	35,166	36,224	37,141	38,895	40,699	43,100	45,141	47,097	49,355	51,322	53,642	56,023	58,586	61,136	63,469	66,402	68,724	72,088
	Large	14,384	14,756	15,348	15,812	16,236	17,053	17,928	19,127	20,131	21,105	22,221	23,213	24,373	25,558	26,834	28,103	29,278	30,739	31,923	33,600
	Agricultural	4,010	4,100	4,239	4,353	4,446	4,636	4,828	5,086	5,295	5,492	5,721	5,913	6,143	6,390	6,655	6,919	7,158	7,461	7,693	8,039
	Other	579	593	614	631	645	673	703	743	777	809	845	877	914	953	994	1,035	1,071	1,118	1,155	1,208
	Direct Access	4,514	4,726	4,976	5,238	5,525	5,833	6,165	6,519	6,870	7,240	7,629	8,039	8,472	8,922	9,395	9,880	10,390	10,927	11,491	12,085
	Total Revenues	$ 118,638	$ 121,622	$ 126,122	$ 129,922	$ 133,195	$ 139,305	$ 145,529	$ 153,706	$ 160,714	$ 167,431	$ 175,168	$ 181,914	$ 189,856	$ 197,985	$ 206,726	$ 215,414	$ 223,372	$ 233,339	$ 241,256	$ 252,653
	COST OF SERVICE ($000)																				
15	Power Supply (@market prices)	71,843	70,530	70,959	72,453	74,152	78,583	81,647	84,633	88,339	91,441	95,662	98,366	102,379	106,674	111,516	116,265	119,826	125,750	128,711	135,963
16	Renewable Power Supply(@renewable prices)	12,865	14,778	17,134	19,925	20,392	21,610	22,453	23,274	24,293	25,146	26,307	27,051	28,154	29,335	30,667	31,973	32,952	34,581	35,396	37,390
17	O&M and A&G	17,210	16,440	16,835	17,222	17,618	18,023	18,438	18,862	19,295	19,739	20,193	20,658	21,133	21,619	22,116	22,625	23,145	23,678	24,222	24,779
	Ancillary Services	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	Planning Reserve	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	Public Purpose Programs	3,761	3,855	3,998	4,119	4,222	4,416	4,613	4,872	5,095	5,308	5,553	5,767	6,018	6,276	6,553	6,829	7,081	7,397	7,648	8,009
	Total Expenses	$ 105,678	$ 105,603	$ 108,925	$ 113,718	$ 116,384	$ 122,633	$ 127,151	$ 131,641	$ 137,022	$ 141,634	$ 147,716	$ 151,841	$ 157,684	$ 163,904	$ 170,852	$ 177,692	$ 183,004	$ 191,405	$ 195,977	$ 206,141
	Net Revenues ($000)	$ 12,960	$ 16,019	$ 17,197	$ 16,204	$ 16,812	$ 16,673	$ 18,378	$ 22,065	$ 23,693	$ 25,797	$ 27,453	$ 30,073	$ 32,172	$ 34,081	$ 35,873	$ 37,722	$ 40,368	$ 41,934	$ 45,279	$ 46,512
	DEBT SERVICE ($000)																				
	Federally Taxable																				
	Federally Non - Taxable																				
20	Total Debt Service	$ 13,436	$ 13,878	$ 14,320	$ 14,762	$ 15,205	$ 15,224	$ 15,252	$ 15,290	$ 15,337	$ 15,393	$ 15,459	$ 15,534	$ 15,620	$ 15,715	$ 15,820	$ 15,936	$ 16,063	$ 16,199	$ 16,347	$ 16,506
	Net Income ($000)	($476)	$2,141	$2,877	$1,442	$1,607	$1,449	$3,126	$6,775	$8,356	$10,404	$11,994	$14,539	$16,552	$18,366	$20,053	$21,786	$24,305	$25,735	$28,932	$30,006
	Bundled Customer Rates																				
	PG&E																				
	PG&E System Average	**$ 0.1257**	**$ 0.1211**	**$ 0.1205**	**$ 0.1232**	**$ 0.1251**	**$ 0.1286**	**$ 0.1256**	**$ 0.1280**	**$ 0.1311**	**$ 0.1336**	**$ 0.1369**	**$ 0.1386**	**$ 0.1417**	**$ 0.1450**	**$ 0.1486**	**$ 0.1476**	**$ 0.1504**	**$ 0.1441**	**$ 0.1464**	**$ 0.1515**
	SMUD																				
	Average SMUD Rates ($/kWh)	$ 0.0892	$ 0.0897	$ 0.0912	$ 0.0921	$ 0.0925	$ 0.0948	$ 0.0971	$ 0.1005	$ 0.1030	$ 0.1052	$ 0.1079	$ 0.1098	$ 0.1124	$ 0.1151	$ 0.1180	$ 0.1209	$ 0.1232	$ 0.1265	$ 0.1285	$ 0.1324
	Amount SMUD lower than PG&E	$0.0365	$0.0314	$0.0293	$0.0311	$0.0326	$0.0338	$0.0285	$0.0275	$0.0280	$0.0284	$0.0290	$0.0288	$0.0293	$0.0299	$0.0307	$0.0268	$0.0272	$0.0176	$0.0179	$0.0191
	Percentage SMUD lower than PG&E	29.04%	25.93%	24.34%	25.23%	26.04%	26.25%	22.68%	21.50%	21.38%	21.22%	21.15%	20.76%	20.69%	20.65%	20.63%	18.13%	18.09%	12.20%	12.20%	12.63%
22	Franchise Fees	$0.0013	$0.0013	$0.0014	$0.0014	$0.0014	$0.0014	$0.0015	$0.0015	$0.0015	$0.0016	$0.0016	$0.0016	$0.0017	$0.0017	$0.0018	$0.0018	$0.0018	$0.0019	$0.0019	$0.0020
23	Property Taxes	$0.0011	$0.0011	$0.0011	$0.0011	$0.0012	$0.0011	$0.0012	$0.0012	$0.0012	$0.0013	$0.0013	$0.0013	$0.0014	$0.0014	$0.0014	$0.0015	$0.0015	$0.0015	$0.0015	$0.0016
	Average All Cities Rates including surcharge ($/kWh)	$ 0.0943	$ 0.0929	$ 0.0940	$ 0.0961	$ 0.0965	$ 0.0991	$ 0.1004	$ 0.1015	$ 0.1033	$ 0.1044	$ 0.1064	$ 0.1070	$ 0.1086	$ 0.1106	$ 0.1129	$ 0.1152	$ 0.1164	$ 0.1194	$ 0.1201	$ 0.1238
	DWR Energy/Bond Costs/Reg Assets/CTC	0.0265	0.0265	0.0269	0.0269	0.0269	0.0212	0.0152	0.0152	0.0152	0.0152	0.0152	0.0152	0.0152	0.0152	0.0152	0.0106	0.0106	-	-	-
24	Nuclear Decomissioning	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	-	-	-	-	-	-	-	-	-
25	FTA	0.0041	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Average All Cities Rates including Surcharge and Non-bypassab	**$ 0.1253**	**$ 0.1198**	**$ 0.1213**	**$ 0.1235**	**$ 0.1239**	**$ 0.1207**	**$ 0.1160**	**$ 0.1171**	**$ 0.1189**	**$ 0.1200**	**$ 0.1220**	**$ 0.1222**	**$ 0.1238**	**$ 0.1257**	**$ 0.1280**	**$ 0.1257**	**$ 0.1270**	**$ 0.1265**	**$ 0.1285**	**$ 0.1324**
	Amount All Cities lower than PG&E ($ / kwh)	0.0004	0.0013	(0.0008)	(0.0003)	0.0012	0.0079	0.0096	0.0109	0.0122	0.0136	0.0149	0.0165	0.0179	0.0193	0.0206	0.0219	0.0234	0.0176	0.0179	0.0191
	Revenue All Cities lower than PG&E ($ in millions)	$490	$1,665	($1,027)	($357)	$1,645	$11,087	$13,730	$15,957	$18,197	$20,707	$23,165	$26,058	$28,888	$31,631	$34,458	$37,245	$40,456	$30,899	$31,940	$34,779
	Percentage All Cities lower than PG&E	0.30%	1.05%	-0.64%	-0.21%	0.95%	6.13%	7.62%	8.51%	9.30%	10.18%	10.90%	11.88%	12.63%	13.28%	13.86%	14.84%	15.56%	12.20%	12.20%	12.63%
	NPV through 2027 @ 6.0%	$180,298																			
	NPV through 2015 @ 6.0%	$28,987																			
	Assumed Debt ($000)	$ -																			
	Real Surcharge	$ 0.0361	$ 0.0301	$ 0.0301	$ 0.0314	$ 0.0314	$ 0.0259	$ 0.0189	$ 0.0166	$ 0.0158	$ 0.0147	$ 0.0140	$ 0.0123	$ 0.0114	$ 0.0107	$ 0.0101	$ 0.0049	$ 0.0038	$ -	$ -	$ -
	Smoothed Surcharge	$ 0.0184	$ 0.0184	$ 0.0184	$ 0.0184	$ 0.0184	$ 0.0184	$ 0.0184	$ 0.0184	$ 0.0184	$ 0.0184	$ 0.0184	$ 0.0184	$ 0.0184	$ 0.0184	$ 0.0184	$ 0.0184	$ 0.0184	$ 0.0184	$ 0.0184	$ 0.0184
	Min	$ -																			
	Max	$ 0.0361																			

($14,246)

APPENDIX E

System Valuation

SMUD Transmission & Distribution Annexation
Estimated RCNLD and OCLD Value of PG&E Facilities
Straight Line Depreciation

	SMUD			
Description	**RCN**	**RCNLD**	**OC**	**OCLD**
Scenario 4 - Acquire All Areas				
Transmission Plant (same as Scenario 3)	$51,071,183	$16,296,974	$14,876,057	$9,189,067
Distribution System				
West Sacramento (includes Deep Water)	$60,403,894	$34,708,314	$41,720,860	$24,312,127
Davis	$78,256,175	$44,480,353	$54,660,019	$31,502,267
Davis (1107) - Not Acquired	(2,907,272)	(1,349,162)	(1,747,188)	(834,576)
Davis (Net)	$75,348,903	$43,131,191	$52,912,832	$30,667,691
Woodland	59,586,512	33,580,770	40,955,167	23,316,325
Plainfield	8,997,980	3,664,480	4,230,902	1,817,373
Streetlights	1,827,518	$581,699	$1,086,094	$345,704
Total Distribution System	$206,164,806	$115,666,454	$140,905,854	$80,459,219
Total Plant Cost	**$257,235,989**	**$131,963,428**	**$155,781,911**	**$89,648,286**
SMUD Scenario				
Transmission Plant	$39,134,033	$14,678,119	$7,827,106	$3,621,071
Distribution System				
West Sacramento (includes Deep Water)	$60,403,894	$34,708,314	$41,720,860	$24,312,127
Davis	$78,256,175	$44,480,353	$54,660,019	$31,502,267
Davis (1107) - Not Acquired	(2,907,272)	(1,349,162)	(1,747,188)	(834,576)
Davis (Net)	$75,348,903	$43,131,191	$52,912,832	$30,667,691
Woodland	59,586,512	33,580,770	40,955,167	23,316,325
Plainfield	8,997,980	3,664,480	4,230,902	1,817,373
Streetlights	1,827,518	$581,699	$1,086,094	$345,704
Total Distribution System	$206,164,806	$115,666,454	$140,905,854	$80,459,219
Total Plant Cost	**$245,298,839**	**$130,344,573**	**$148,732,960**	**$84,080,290**

SMUD Annexation Study
Distribution System Summary
Straight Line Depreciation

Description	Unit	Quantity	SMUD QUANTITY	SMUD RCN	SMUD RCNLD	SMUD OC	SMUD OCLD
WEST SACRAMENTO (includes Deep Water)							
SUBSTATIONS	MVA	117.20	117.20	$ 6,812,111	$5,565,842	$4,749,593	$3,887,137
FEEDERS							
12 kv Overhead feeder,	mi	121.44	121.44	$ 9,069,500	$4,028,964	$5,190,746	$2,305,885
12 Kv Underground feeder	mi	71.65	50.16	$ 20,546,200	$12,741,811	$16,203,157	$10,048,420
	mi	193.09	171.60	$ 29,615,700	$16,770,775	$21,393,903	$12,354,305
POLES	Unit	3,500		$ -	$0	$0	$0
TRANSFORMERS							
OVERHEAD	Unit	1,174	1,528.00	$ 1,849,900	$1,211,252	$1,517,432	$993,499
PAD MOUNTED	Unit	682	682.00	$ 3,674,800	$2,422,250	$1,736,734	$1,147,965
	Unit	1,856	2,210.00	$ 5,524,700	$3,633,502	$3,254,165	$2,141,464
LOW VOLTAGE CIRCUITS	mi	43.19	43.19	$ 3,282,100.00	$1,982,374	$2,523,129	$1,534,357
Right of Way				$ 150,400.00	$150,400	$150,400	$150,400
SERVICE DROPS & METERS	Unit	234	1,260.04	$ 12,542,086.75	$5,505,154	$8,232,132	$3,614,751
RISERS, SWITCHES, CAPACITORS I	Unit	370	305.00	$ 2,476,796	$1,100,267	$1,417,537	$629,713
				$ 60,403,894	**$34,708,314**	**$41,720,860**	**$24,312,127**
DAVIS							
SUBSTATIONS	MVA	130.50	130.50	$ 5,486,493	$4,401,264	$3,694,733	$2,963,914
FEEDERS							
12 kv Overhead feeder,	mi	146.00	146.59	$ 11,595,200	$5,150,896	$6,636,196	$2,947,997
12 Kv Underground feeder	mi	104.68	83.75	$ 27,362,100	$16,968,689	$21,578,277	$13,381,811
	mi	250.68	230.34	$ 38,957,300	$22,119,585	$28,214,473	$16,329,809
POLES	Unit	3,571		$ -	$0	$0	$0
TRANSFORMERS							
OVERHEAD	Unit	913	1,225.00	$ 1,566,800	$1,025,845	$1,285,157	$841,423
PAD MOUNTED	Unit	1,087	1,087.00	$ 4,509,300	$3,244,686	$2,452,104	$1,801,238
	Unit	2,000	2,312.00	$ 6,076,100	$4,270,530	$3,737,261	$2,642,661
LOW VOLTAGE CIRCUITS	mi	82.68	82.68	$ 7,905,100.00	$4,850,743	$6,170,635	$3,797,215
Right of Way				$ 219,100.00	$219,111	$219,111	$219,111
SERVICE DROPS & METERS	Unit	143	1,579	$ 16,756,200.00	$7,350,451	$10,989,308	$4,823,463
RISERS, SWITCHES, CAPACITORS I	Unit	99	342.00	$ 2,855,882	$1,268,668	$1,634,499	$726,093
				$ 78,256,175	**$44,480,353**	**$54,660,019**	**$31,502,267**
DAVIS (1107)							
SUBSTATIONS	MVA				$0	$0	$0
FEEDERS							
12 kv Overhead feeder,	mi	27.10	27.10	$ 2,205,600	$979,809	$1,262,345	$560,771
12 Kv Underground feeder	mi	0.35	0.28	$ 122,300	$75,845	$96,448	$59,812
	mi	27.45	27.38	$ 2,327,900	$1,055,654	$1,358,792	$620,584
POLES	Unit	440		$ -	$0	$0	$0
TRANSFORMERS							
OVERHEAD	Unit	94	156.00	$ 173,800	$113,839	$142,615	$93,374
PAD MOUNTED	Unit	2	2.00	$ 13,700	$8,996	$6,422	$4,205
	Unit	96	158.00	$ 187,500	$122,835	$149,037	$97,578
LOW VOLTAGE CIRCUITS	mi	0.55	0.55	$ 11,000.00	$4,856	$6,256	$2,779
Right of Way				$ 19,600.00	$19,552	$19,552	$19,552
SERVICE DROPS & METERS	Unit	4	18.09	$ 255,800.00	$112,886	$170,545	$74,979
RISERS, SWITCHES, CAPACITORS I	Unit	3	5.00	$ 105,472	$33,379	$43,005	$19,104
				$ 2,907,272	**$1,349,162**	**$1,747,188**	**$834,576**

SMUD Annexation Study
Distribution System Summary
Straight Line Depreciation

Description	Unit	Quantity	SMUD QUANTITY	SMUD RCN		SMUD RCNLD	SMUD OC	SMUD OCLD
PLAINFIELD								
SUBSTATIONS	MVA	12.00	12.00	$	977,666	$696,489	$411,765	$293,341
FEEDERS								
12 kv Overhead feeder,	mi	67.81	67.81	$	5,260,000	$1,696,958	$2,209,240	$718,562
12 Kv Underground feeder	mi	1.70	1.36	$	338,400	$209,884	$266,899	$165,518
	mi	69.51	69.17	$	5,598,400	$1,906,841	$2,476,139	$884,080
POLES	Unit	1,348		$	-	$0	$0	$0
TRANSFORMERS								
OVERHEAD	Unit	301	466.00	$	563,200	$343,459	$397,841	$244,597
PAD MOUNTED	Unit	17	17.00	$	51,900	$40,675	$31,593	$25,431
	Unit	318	483.00	$	615,100	$384,134	$429,434	$270,028
LOW VOLTAGE CIRCUITS	mi	3.58	0.55	$	161,500	$84,768	$108,297	$60,813
Right of Way				$	50,900	$50,922	$50,922	$50,922
SERVICE DROPS & METERS	Unit	42	18.09	$	1,344,200	$448,285	$633,828	$212,093
RISERS, SWITCHES, CAPACITORS I	Unit	73	53.00	$	250,214	$93,039	$120,518	$46,095
				$	**8,997,980**	**$3,664,480**	**$4,230,902**	**$1,817,373**
WOODLAND								
SUBSTATIONS	MVA	145.50	145.50	$	4,465,873	$3,369,808	$2,464,128	$1,859,826
FEEDERS								
12 kv Overhead feeder,	mi	107.69	107.69	$	8,229,300	$3,655,700	$4,709,848	$2,092,256
12 Kv Underground feeder	mi	81.30	65.04	$	21,943,500	$13,608,322	$17,305,057	$10,731,766
	mi	188.99	172.73	$	30,172,800	$17,264,021	$22,014,905	$12,824,022
POLES (Pole costs assumed @$2100)	Unit	2,580		$	-	$0	$0	$0
TRANSFORMERS								
OVERHEAD	Unit	1,145	1,438.00	$	1,977,000	$1,294,273	$1,607,448	$1,052,435
PAD MOUNTED	Unit	779	786.00	$	3,338,300	$2,403,350	$1,816,854	$1,335,383
	Unit	1,924	2,224.00	$	5,315,300	$3,697,623	$3,424,303	$2,387,818
LOW VOLTAGE CIRCUITS	mi	51.47	51.47	$	3,381,000.00	$2,015,488	$2,566,429	$1,545,050
Right of Way				$	156,900.00	$156,936	$156,936	$156,936
SERVICE DROPS & METERS	Unit	42	1,305.76	$	13,375,000.00	$5,868,748	$8,771,941	$3,851,218
RISERS, SWITCHES, CAPACITORS I	Unit	-	311.00	$	2,719,639	$1,208,145	$1,556,523	$691,454
				$	**59,586,512**	**$33,580,770**	**$40,955,167**	**$23,316,325**
Street Lights				**$**	**1,827,518**	**$ 581,698.98**	**$ 1,086,093.95**	**345703.7035**
TOTAL DISTRIBUTION		40,893			**$206,164,806**	**$115,666,454**	**$140,905,854**	**$80,459,219**

SMUD Annexation Study — **Estimated RCNLD and OCLD Values**

West Sacramento (includes Deep Water) — **Straight Line Depreciation**

SMUD — Using Beck Methdology

Description	Unit	Quantity	Per Unit Price	SMUD ESTIMATE	TOTAL SMUD	Year	Age in 2004	%/yr	Depr	% Cond	FERC Acct	Survivor Curve	ASL	Age % of ASL	Unadjusted Depreciation	Net Salvage %	Adjusted Depreciation	HANDY-WHITMAN Line No.	HANDY-WHITMAN Year Installed	HANDY-WHITMAN 7/31/04	Factor	RCN	SMUD RCNLD	SMUD OC	SMUD OCLD
SUBSTATIONS																									
West Sacramento	**MVA**	90.00	70,171			1989	15	1.5%	23%	78%	362	L0	43	**35%**	19.78%	0%	19.78%	43	299	444	0.6734				
Deepwater	MVA	16.00	84,441			1994	10	1.5%	15%	85%	362	L0	43	**23%**	14.30%	0%	14.30%	43	338	444	0.7613				
Post Office	MVA	11.20	167,671			1989	15	1.5%	23%	78%	362	L0	43	**35%**	19.78%	0%	19.78%	43	299	444	0.6734				
		117.20																							
SMUD																									
West Sacramento	MVA	90.00		4,886,013		1989	15	1.5%	23%	78%	362	L0	43	**35%**	19.78%	0%	19.78%	43	299	444	0.6734	$4,886,013	**$3,919,559**	**$3,290,355**	**$2,639,523**
Deepwater	MVA	16.00		1,846,099		1994	10	1.5%	15%	85%	362	L0	43	**23%**	14.30%	0%	14.30%	43	338	444	0.7613	$1,846,099	**$1,582,107**	**$1,405,363**	**$1,204,396**
Post Office	MVA	11.20		80,000		1989	15	1.5%	23%	78%	362	L0	43	**35%**	19.78%	0%	19.78%	43	299	444	0.6734	$80,000	**$64,176**	**$53,874**	**$43,218**
		117.20		**6,812,111**	**6,812,111**																	$6,812,111	$5,565,842	$4,749,593	$3,887,137
FEEDERS																									
12 kv Overhead feeder,																									
3 # 715.5 MCM AL	mi	-	44,338			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
3 # 397.5 MCM AL	mi	28.00	39,408			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
3 # 4/0 AWG AL	mi	15.36	36,588			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
3 # 2/0 AWG AL	mi	0.15	25,236			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
3 # 1/0 AWG AL	mi	14.79	21,462			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
3 # 2 AWG AL	mi	0.41	21,565			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
2 # 2 AWG AL	mi	0.19	14,377			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
3 # 4 AWG AL	mi	21.77	21,565			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
2 # 4 AWG AL	mi	7.03	14,377			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
3 # 6 AWG CU	mi	15.69	12,917			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
2 # 6 AWG CU	mi	18.06	8,611			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
		121.44																							
SMUD			$ / mile																						
3-795 kcmil AAC		-	$ 92,541	$ -		1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723	$0			
3-477 kcmil AAC		43.35	$ 82,368	$ 3,570,700		1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723	$3,570,704	**$1,586,214**	**$2,043,611**	**$907,833**
3-# 1/0 AAAC		53.01	$ 78,848	$ 4,179,400		1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723	$4,179,449	**$1,856,637**	**$2,392,012**	**$1,062,603**
1-# 1/0 AAAC		25.09	52,592	$ 1,319,400		1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723	$1,319,392	**$586,114**	**$755,124**	**$335,449**
Includes poles, hardware, and loaded labor.		**121.44**		**$ 9,069,500**	**$ 9,069,500**																	$9,069,545	$4,028,964	$5,190,746	$2,305,885
12 Kv Underground feeder SUBURBAN Area																									
3 # 1250 MCM AL	mi	-	263,405			1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 1000 MCM AL	mi	16.79	263,405			1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 350 MCM AL	mi	0.56	235,615			1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 4/0 MCM AL	mi	0.17	235,615			1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 1/0 MCM AL	mi	14.01	223,600			1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
2 # 1/0 MCM AL	mi	18.63	196,294			1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
		50.16																							
SMUD			$ / mile																						
3-1000 kcmil AL		16.79	$342,371	$ 5,748,400		1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886	$5,748,409	**$3,564,887**	**$4,533,298**	**$2,811,334**
3-500 kcmil AL		0.56	$302,218	$ 169,200		1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886	$169,242	**$104,956**	**$133,467**	**$82,770**
3-#2 AL		32.81	$241,929	$ 7,937,700		1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886	$7,937,690	**$4,922,575**	**$6,259,805**	**$3,882,030**
		50.16		**$ 13,855,300**	**$13,855,300**																	$13,855,342	$8,592,418	$10,926,570	$6,776,134
12 Kv Underground feeder URBAN Area																									
3 # 1250 MCM AL	mi	-	468,419			1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 1000 MCM AL	mi	7.20	468,419			1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 350 MCM AL	mi	0.24	440,629			1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 4/0 MCM AL	mi	0.07	440,629			1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 1/0 MCM AL	mi	6.00	428,614			1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
2 # 1/0 MCM AL	mi	7.98	401,308			1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
		21.49																							
SMUD			$ / mile																						
3-1000 kcmil AL		7.20	$377,659	$ 2,719,100		1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886	$2,719,145	**$1,686,283**	**$2,144,366**	**$1,329,833**
3-500 kcmil AL		0.24	$337,218	$ 80,900		1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886	$80,932	**$50,190**	**$63,825**	**$39,581**
3-#2 AL		14.05	$276,929	$ 3,890,900		1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886	$3,890,852	**$2,412,920**	**$3,068,396**	**$1,902,872**
		21.49		**$ 6,690,900**	**$ 6,690,900**																	$6,690,930	$4,149,393	$5,276,587	$3,272,286
POLES																									
40 to 45 feets pole, with all hardwares and accessories	Unit	3,500	2,103			1984	20	1.5%	30%	70%	364	L0	37	**54%**	27.29%	-35%	36.84%	44	266	448	0.5938				
		3,500																							
SMUD																						$0			
Costs included with OH conductor.					**$ -**																	$0	$0	$0	$0
TRANSFORMERS																									
OVERHEAD SINGLE - PHASE TRANSFORMERS																									
5 kVA	Unit	2	822			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x10 kVA	Unit	141	822			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x15 kVA	Unit	174	832			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x25 kVA	Unit	268	1,061			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x37.5 kVA	Unit	117	1,248			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x50 kVA	Unit	161	1,670			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x75 kVA	Unit	51	1,763			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x100 kVA	Unit	7	1,857			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x167 kVA	Unit	-	1,857			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
		921																							
SMUD																									
10 kVA		143	822	$ 117,600		1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202	$117,561	**$76,970**	**$96,426**	**$63,133**
15 kVA		174	832	$ 144,800		1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202	$144,842	**$94,831**	**$118,803**	**$77,783**
25 kVA		268	1,061	$ 284,400		1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202	$284,431	**$186,224**	**$233,297**	**$152,745**

SMUD Annexation Study — **Estimated RCNLD and OCLD Values**

West Sacramento (includes Deep Water) — **Straight Line Depreciation**

SMUD

Using Beck Methdology

Description	Unit	Quantity	Per Unit Price	SMUD ESTIMATE	TOTAL SMUD	Year	Age in 2004	%/yr	Depr	% Cond	FERC Acct	Survivor Curve	ASL	Age % of ASL	Unadjusted Depreciation	Net Salvage %	Adjusted Depreciation	HANDY-WHITMAN Line No.	HANDY-WHITMAN Year Installed	HANDY-WHITMAN 7/31/04	HANDY-WHITMAN Factor	RCN	SMUD RCNLD	SMUD OC	SMUD OCLD
50 kVA		278	1,670	$ 464,300		1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202	$464,262	$303,964	$380,799	$249,319
75 kVA		51	1,763	$ 89,900		1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202	$89,936	$58,883	$73,767	$48,297
100 kVA		7.00	1,856.88	$ 13,000		1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202	$12,998	$8,510	$10,661	$6,980
SMUD does not install 37.5 kVA tx's		921		$ 1,114,000	$ 1,114,000																	$1,114,029	$729,382	$913,754	$598,257
OVERHEAD THREE - PHASE TRANSFORMERS																									
1x45 kVA	Unit	4	1,670			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
1x112.5 kVA	Unit	1	3,360			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
1x150 kVA	Unit	8	3,547			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
1x225 kVA	Unit	3.00	3,733			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
		16																							
SMUD																									
3-15 kVA		4	$ 2,494	$ 10,000		1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202	$9,976	$6,532	$8,183	$5,357
3-50 kVA		9	$ 4,069	$ 36,600		1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202	$36,621	$23,977	$30,037	$19,666
3-75 kVA		3.00	$ 5,117	$ 15,400		1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202	$15,351	$10,051	$12,591	$8,244
		16		$ 62,000	$ 62,000																	$61,948	$40,559	$50,811	$33,267
SMUD does not install overhead 3-phase transformers.																									
Used costs for 3-single phase OH transformer installation.																									
OVERHEAD THREE - PHASE TRANSFORMERS BANKS																									
3x10 kVA	Unit	9	2,466			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
3x15 kVA	Unit	17	2,497			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
3x25 kVA	Unit	35	3,184			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
3x37.5 kVA	Unit	2	3,745			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
3x50 kVA	Unit	5	5,010			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
3x75 kVA	Unit	4	5,290			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
3x100 kVA	Unit	-	10,079			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
3x167 kVA	Unit	1	10,640			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
3x250 kVA	Unit	-	11,200			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
3x500 kVA	Unit	-	11,200			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x10+1x5 kVA	Unit	-	2,466			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x10+1x25 kVA	Unit	3	2,706			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x10+1x37.5 kVA	Unit	-	2,892			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x10+1x50 kVA	Unit	-	3,314			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	45.71%	8%	42.05%	48	168	267	0.6292				
2x10+1x75 kVA	Unit	1	3,408			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x15+1x25 kVA	Unit	-	2,726			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x15+1x37.5 kVA	Unit	1	2,913			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x15+1x50 kVA	Unit	1	3,335			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x25+1x15 kVA	Unit	-	2,955			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x25+1x37.5 kVA	Unit	-	3,371			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x25+1x50 kVA	Unit	2	3,793			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x25+1x75 kVA	Unit	1	3,886			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x25+1x100 kVA	Unit	1	3,979			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x37.5+1x50 kVA	Unit	1	4,166			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x50+1x25 kVA	Unit	1	4,401			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x50+1x37.5 kVA	Unit	-	4,588			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x50+1x75 kVA	Unit	-	5,103			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
		85																							
SMUD																									
3-10 kVA		9	$ 2,448	$ 22,000		1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202	$22,032	$14,425	$18,071	$11,832
3-15 kVA		17	$ 2,494	$ 42,400		1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202	$42,398	$27,759	$34,776	$22,769
3-25 kVA		38	$ 2,927	$ 111,200		1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202	$111,226	$72,822	$91,230	$59,731
3-50 kVA		13	$ 4,069	$ 52,900		1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202	$52,897	$34,633	$43,387	$28,407
3-75 kVA		6	5,117	$ 30,700		1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202	$30,702	$20,101	$25,183	$16,488
3-100 kVA		2	5,593	$ 11,200		1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202	$11,186	$7,324	$9,175	$6,007
1-750 kVA Padmount		-	$ 13,054	$ -		1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202	$0			
1-1500 kVA Padmount		-	$ 23,439	$ -		1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202	$0			
SMUD does not install 37.5 nor 167 kVA OH tx's		85		$ 270,400	$ 270,400																	$270,441	$177,064	$221,822	$145,232
OVERHEAD TWO TRANSFORMERS BANKS																									
1x5 + 1x25 kVA	Unit	-	1,510			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
1x5 + 1x37.5 kVA	Unit	-	1,790			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
1x10 + 1x15 kVA	Unit	11	1,655			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
1x10 + 1x25 kVA	Unit	19	1,883			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
1x10 + 1x37.5 kVA	Unit	5	2,070			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
1x10 + 1x50 kVA	Unit	3	2,492			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
1x10 + 1x75 kVA	Unit	1	2,586			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
1x10 + 1x100 kVA	Unit	1	2,679			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
1x15 + 1x25 kVA	Unit	10	1,894			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
1x15 + 1x37.5 kVA	Unit	3	2,081			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
1x15 + 1x50 kVA	Unit	9	2,502			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
1x15 + 1x75 kVA	Unit	3	2,596			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
1x15 + 1x100 kVA	Unit	2	2,689			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
1x25 + 1x37.5 kVA	Unit	4	2,309			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
1x25 + 1x50 kVA	Unit	11	2,731			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
1x25 + 1x75 kVA	Unit	2	2,825			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
1x25 + 1x100 kVA	Unit	-	2,918			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
1x37.5 + 1x50 kVA	Unit	4	2,918			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
1x50 + 1x75 kVA	Unit	2	3,433			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
1x50 + 1x100 kVA	Unit	-	3,527			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x5 kVA	Unit	-	1,644			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x10 kVA	Unit	25	1,644			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x15 kVA	Unit	20	1,665			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x25 kVA	Unit	12	2,123			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x37.5 kVA	Unit	-	2,496			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x50 kVA	Unit	3	3,340			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				

SMUD Annexation Study	Estimated RCNLD and OCLD Values																					SMUD			
West Sacramento (includes Deep Water)	Straight Line Depreciation																					Using Beck Methdology			
																		HANDY-WHITMAN							
Description	Unit	Quantity	Per Unit Price	SMUD ESTIMATE	TOTAL SMUD	Year	Age in 2004	%/yr	Depr	% Cond	FERC Acct	Survivor Curve	ASL	Age % of ASL	Unadjusted Depreciation	Net Salvage %	Adjusted Depreciation	Line No.	Year Installed	7/31/04	Factor	RCN	SMUD RCNLD	SMUD OC	SMUD OCLD
2x75 kVA	Unit	1	3,527			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x100 kVA	Unit	1	3,714			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
		152																							
SMUD																									
2x10 kVA		25	$ 2,032	$ 50,800		1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202	$50,800	**$33,260**	**$41,667**	**$27,281**
2x15 kVA		31	$ 2,017	$ 62,500		1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202	$62,527	**$40,938**	**$51,286**	**$33,578**
2x25 kVA		41	$ 2,306	$ 94,500		1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202	$94,546	**$61,902**	**$77,549**	**$50,773**
2x50 kVA		42	$ 3,422	$ 143,700		1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202	$143,724	**$94,100**	**$117,886**	**$77,183**
2x75 kVA		9	$ 3,884	$ 35,000		1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202	$34,956	**$22,887**	**$28,672**	**$18,772**
2x100 kVA		4	$ 4,262	$ 17,000		1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202	$17,048	**$11,162**	**$13,983**	**$9,155**
SMUD does not install 37.5 nor 167 kVA OH tx's		**152**		**$ 403,500**	**$ 403,500**																	$403,601	$264,247	$331,044	$216,742
PAD MOUNTED SINGLE-PHASE TRANSFORMERS																									
1x15 kVA	Unit	-	1,432			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x25 kVA	Unit	-	1,432			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x37.5 kVA	Unit	-	1,850			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x50 kVA	Unit	93	1,850			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x75 kVA	Unit	271	2,454			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x100 kVA	Unit	3	2,870			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x167 kVA	Unit	-	2,964			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
		367																							
SMUD																									
1-50 kVA		93	$ 2,183	$ 203,000		1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674	$203,019	**$132,921**	**$94,889**	**$62,126**
1-75 kVA		271	$ 2,603	$ 705,400		1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674	$705,413	**$461,851**	**$329,704**	**$215,865**
1-100 kVA		3	$ 2,892	$ 8,700		1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674	$8,676	**$5,680**	**$4,055**	**$2,655**
		367		**$ 917,100**	**$ 917,100**																	$917,108	$600,453	$428,648	$280,646
PAD MOUNTED THREE-PHASE TRANSFORMERS																									
1x45 kVA	Unit	-	2,124			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x67.5 kVA	Unit	-	3,780			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x75 kVA	Unit	87	3,780			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x112.5 kVA	Unit	-	4,309			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x150 kVA	Unit	66	7,186			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x225 kVA	Unit	2	8,058			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x300 kVA	Unit	76	8,930			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x500 kVA	Unit	5	10,844			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x750 kVA	Unit	6	15,126			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x1000 kVA	Unit	29	16,294			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x1500 kVA	Unit	17	24,818			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x2000 kVA	Unit	-	30,039			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x2500 kVA	Unit	-	30,039			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x3000 kVA	Unit	-	30,039			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x5000 kVA	Unit	-	30,039			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
		288																							
SMUD																									
1-75 kVA		87	$ 5,855	$ 509,400		1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674	$509,385	**$333,507**	**$238,082**	**$155,878**
1-150 kVA		66	$ 6,870	$ 453,400		1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674	$453,420	**$296,865**	**$211,925**	**$138,752**
1-300 kVA		78	$ 8,481	$ 661,500		1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674	$661,518	**$433,112**	**$309,188**	**$202,433**
1-500 kVA		5	$ 11,157	$ 55,800		1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674	$55,785	**$36,524**	**$26,073**	**$17,071**
1-750 kVA		6	$ 13,054	$ 78,300		1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674	$78,324	**$51,281**	**$36,608**	**$23,968**
1-1000 kVA		29	$ 17,451	$ 506,100		1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674	$506,079	**$331,342**	**$236,537**	**$154,866**
1-1500 kVA		17	$ 23,439	$ 398,500		1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674	$398,463	**$260,883**	**$186,238**	**$121,935**
SMUD does not stock tx's larger than 2500 kVA,**parallel units are used.**		**288**		**$ 2,663,000**	**$ 2,663,000**																	$2,662,974	$1,743,513	$1,244,651	$814,903
SUBSURFACE SINGLE - PHASE TRANSFORMERS																									
1x50 kVA	Unit	-	2,124			1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696				
1x75 kVA	Unit	3	2,541			1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696				
1x100 kVA	Unit	20	2,957			1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696				
		23																							
SMUD																									
1-50 kVA		0	$ 2,183	$ -		1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696	$0			
1-75 kVA		3	$ 2,603	$ 7,800		1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696	$7,809	**$6,453**	**$5,229**	**$4,320**
1-100 kVA		20	$ 2,892	$ 57,800		1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696	$57,840	**$47,793**	**$38,728**	**$32,001**
SMUD does not install sub-surface transformers,		**23**		**$ 65,600**	**$ 65,600**																	$65,649	$54,246	$43,956	$36,321
Cost here is for padmount transformers & loaded labor to install.																									
SUBSURFACE THREE - PHASE TRANSFORMERS																									
1x112.5 kVA	Unit	-	4,303			1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696				
1x150 kVA	Unit	3	7,290			1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696				
1x225 kVA	Unit	-	8,162			1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696				
1x300 kVA	Unit	1	9,034			1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696				
1x500 kVA	Unit	-	10,965			1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696				
1x1000 kVA	Unit	-	15,265			1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696				
1x1500 kVA	Unit	-	25,096			1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696				
1x2500 kVA	Unit	-	30,318			1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696				
1x3000 kVA	Unit	-	30,318			1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696				
		4																							
SMUD																									
1-150 kVA		3	$ 6,870	$ 20,600		1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696	$20,610	**$17,030**	**$13,800**	**$11,403**
1-300 kVA		1	$ 8,481	$ 8,500		1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696	$8,481	**$7,008**	**$5,679**	**$4,692**
1-500 kVA		-	$ 11,157	$ -		1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696	$0			
1-1000 kVA		-	$ 17,451	$ -		1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696	$0			
1-1500 kVA		-	$ 23,439	$ -		1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696	$0			
SMUD does not stock tx's larger than 2500 kVA,**parallel units are used.**		**4**		**$ 29,100**	**$ 29,100**																	$29,091	$24,038	$19,478	$16,095

SMUD Annexation Study — **Estimated RCNLD and OCLD Values**

West Sacramento (includes Deep Water) — **Straight Line Depreciation**

SMUD
Using Beck Methdology

Description	Unit	Quantity	Per Unit Price	SMUD ESTIMATE	TOTAL SMUD	Year	Age in 2004	%/yr	Depr	% Cond	FERC Acct	Survivor Curve	ASL	Age % of ASL	Unadjusted Depreciation	Net Salvage %	Adjusted Depreciation	HANDY-WHITMAN Line No.	HANDY-WHITMAN Year Installed	HANDY-WHITMAN 7/31/04	HANDY-WHITMAN Factor	RCN	SMUD RCNLD	SMUD OC	SMUD OCLD
SMUD does not install sub-surface transformers,																									
Cost here is for padmount transformers & loaded labor to install.																									
OVERHEAD LOW VOLTAGE CIRCUITS																									
3 # 1/0 AWG AL Bare	mi	7.59	18,058			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
3 # 4/0 AWG AL Bare	mi	7.59	30,668			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
		15.18																							
SMUD																									
3 # 1/0 AWG AL Bare	mi	7.59	$ 19,875	$ 150,800		1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723	$150,802	**$66,991**	**$86,308**	**$38,341**
3 # 4/0 AWG AL Bare	mi	7.59	$ 19,875	$ 150,800		1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723	$150,802	**$66,991**	**$86,308**	**$38,341**
		15.18		**$ 301,600**	**$ 301,600**																				
Assumes pole is existing in the field.																						$301,603	$133,981	$172,616	$76,681
UNDERGROUND LOW VOLTAGE CIRCUIT																									
3 # 4/0 AWG AL 600V	mi	4.46	129,403			1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 350 AWG AL	mi	20.55	129,403			1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 700 AWG AL	mi	3.00	129,403			1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
		28.01																							
SMUD																									
3 # 4/0 AWG AL 600V	mi	4.46	$102,827	$ 459,000		1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886	$459,018	**$284,661**	**$361,990**	**$224,489**
3 # 350 AWG AL	mi	20.55	$105,933	$ 2,176,900		1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886	$2,176,930	**$1,350,027**	**$1,716,766**	**$1,064,656**
3 # 500 CU (Eq 700 AWG Al)	mi	3.00	$114,867	$ 344,600		1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886	$344,600	**$213,704**	**$271,758**	**$168,531**
		28.01		**$ 2,980,500**	**$ 2,980,500**																	$2,980,548	$1,848,393	$2,350,514	$1,457,676
Distribution Rights of Way																									
Rights of Way		-	-			1984	20	1.5%	30%	70%	370	R2	32	**63%**	50.80%	0%	50.80%	52	213	324	0.6574				
		-																							
SMUD																									
Rights of Way	Unit	43	3,500	$ 150,400		1984	20	1.5%	30%	70%	370	R2	32	**63%**	50.80%	0%	50.80%	52	213	324	0.6574	$150,400	$150,400	$150,400	$150,400
		43		**$ 150,400**	**$ 150,400**																				
SERVICE DROP																									
Overhead Low Voltage single-phase Service Drop, 50 Feet																									
1C Triplex # 6 AWG AL.	Unit	414	294			1984	20	1.5%	30%	70%	369.1	R4	43	**47%**	46.04%	-45%	66.76%	50	255	393	0.6489				
1C Triplex # 2 AWG AL.	Unit	179	311			1984	20	1.5%	30%	70%	369.1	R4	43	**47%**	46.04%	-45%	66.76%	50	255	393	0.6489				
1C Triplex # 1/0 AWG de AL.	Unit	4,135	327			1984	20	1.5%	30%	70%	369.1	R4	43	**47%**	46.04%	-45%	66.76%	50	255	393	0.6489				
1C Triplex # 4/0 AWG de AL.	Unit	9	327			1984	20	1.5%	30%	70%	369.1	R4	43	**47%**	46.04%	-45%	66.76%	50	255	393	0.6489				
1 C Quadruplex # 1/0 AWG AL.	Unit	181	534			1984	20	1.5%	30%	70%	369.1	R4	43	**47%**	46.04%	-45%	66.76%	50	255	393	0.6489				
1 C Quadruplex # 4/0 AWG de AL.	Unit	59	534			1984	20	1.5%	30%	70%	369.1	R4	43	**47%**	46.04%	-45%	66.76%	50	255	393	0.6489				
2 # 1/0 AWG. (phases) y 1 # 2 AWG (neutral) AL 600 V.	Unit	7,489	309			1984	20	1.5%	30%	70%	369.1	R4	43	**47%**	46.04%	-45%	66.76%	50	255	393	0.6489				
2 # 350 MCM. (phases) y 1 # 4/0 AWG (neutral) AL 600 V.	Unit	33	364			1984	20	1.5%	30%	70%	369.1	R4	43	**47%**	46.04%	-45%	66.76%	50	255	393	0.6489				
2 # 1000 MCM. (phases) y 1 # 350 MCM (neutral) AL 600 V.	Unit	8	373			1984	20	1.5%	30%	70%	369.1	R4	43	**47%**	46.04%	-45%	66.76%	50	255	393	0.6489				
		12,506																							
SMUD																									
OH SVC 2-1/0 AWG 1#2 AWG		**12,506**	$ 321	**$ 4,014,500**	**4,014,500**	1984	20	1.5%	30%	70%	369.1	R4	43	**47%**	46.04%	-45%	66.76%	50	255	393	0.6489	$4,014,462	**$1,334,488**	**$2,604,804**	**$865,889**
																						$4,014,462	$1,334,488	$2,604,804	$865,889
Assumes pole is existing in the field.																									
Overhead Low Voltage three-phase Service Drop, 50 Feet																									
1 C Quadruplex # 1/0 AWG AL.	Unit	-	534			1984	20	1.5%	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
1 C Quadruplex # 4/0 AWG de AL.	Unit	-	534			1984	20	1.5%	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
3 # 1/0 AWG (phases) y 1 # 2 AWG (neutral) AL 600 V.	Unit	-	411			1984	20	1.5%	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
3 # 4/0 AWG (phases) y 1 # 1/0 AWG (neutral) AL 600 V.	Unit	55	449			1984	20	1.5%	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
3 # 350 MCM (phases) y 1 # 4/0 AWG (neutral) AL 600 V.	Unit	6	489			1984	20	1.5%	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
3 # 1000 MCM (phases) y 1 # 350 MCM (neutral) AL 600 V.	Unit	54	498			1984	20	1.5%	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
2 circuits 3 # 1000 MCM (phases) y 1 # 350 MCM (neutral) AL 600 V.	Unit	58	621			1984	20	1.5%	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
3 circuits 3 # 1000 MCM (phases) y 1 # 350 MCM (neutral) AL 600 V.	Unit	22	745			1984	20	1.5%	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
5 circuits 3 # 1000 MCM (phases) y 1 # 350 MCM (neutral) AL600 V.	Unit	11	993			1984	20	1.5%	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
7 circuits 3 # 1000 MCM (phases) y 1 # 350 MCM (neutral) AL600 V.	Unit	-	1,241			1984	20	1.5%	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
9 circuits 3 # 1000 MCM (phases) y 1 # 350 MCM (neutral) AL600 V.	Unit	-	1,488			1984	20	1.5%	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
		205																							
SMUD																									
All OH Commercial Serices		**54.84**	$ 800	$ 43,871		1984	20	1.5%	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927	$43,871	**$14,584**	**$34,778**	**$11,561**
All UG Commercial Serices		**150**	$ 750	$ 112,515		1984	20	1.5%	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927	$112,515	**$37,402**	**$89,194**	**$29,650**
Assumes pole is existing in the field.		**205**		**156,387**	**156,387**																	$156,387	$51,986	$123,972	$41,211
Underground Service Drop																									
All UG service drops	Unit	6,794	1,021			1984	20	1.5%	30%	70%	370	R2	32	**63%**	50.80%	0%	50.80%	52	213	324	0.6574				
		6,794																							
SMUD																									
All UG service drops	Unit	6,794	1,021	$ 6,936,400		1984	20	1.5%	30%	70%	370	R2	32	**63%**	50.80%	0%	50.80%	52	213	324	0.6574	$6,936,447	**$3,412,732**	**$4,560,072**	**$2,243,555**
		6,794		**$ 6,936,400**	**$ 6,936,400**																	$6,936,447	$3,412,732	$4,560,072	$2,243,555
Meters																									
Residential	Unit	18,982	131			1984	20	1.5%	30%	70%	370	R2	32	**63%**	50.80%	0%	50.80%	52	213	324	0.6574				
Commercial	Unit	999	290.069			1984	20	1.5%	30%	70%	370	R2	32	**63%**	50.80%	0%	50.80%	52	213	324	0.6574				
Industrial	Unit	1	538			1984	20	1.5%	30%	70%	370	R2	32	**63%**	50.80%	0%	50.80%	52	213	324	0.6574				
		19,982																2,729,677							
SMUD																									
Residential		18,982	$ 68	$ 1,290,800		1984	20	1.5%	30%	70%	370	R2	32	**63%**	50.80%	0%	50.80%	52	213	324	0.6574	$1,290,802	**$635,075**	**$848,583**	**$417,503**
Commercial		999	$ 144	$ 143,800		1984	20	1.5%	30%	70%	370	R2	32	**63%**	50.80%	0%	50.80%	52	213	324	0.6574	$143,808	**$70,753**	**$94,540**	**$46,514**
Industrial		1	245	$ 200		1984	20	1.5%	30%	70%	370	R2	32	**63%**	50.80%	0%	50.80%	52	213	324	0.6574	$245	**$121**	**$161**	**$79**
	11,568	**19,982**		**$ 1,434,800**	**$ 1,434,800**																	$1,434,855	$705,949	$943,284	$464,096
Used Above estimate																									

SMUD Annexation Study — **Estimated RCNLD and OCLD Values**

West Sacramento (includes Deep Water) — **Straight Line Depreciation**

SMUD

Using Beck Methdology

Description	Unit	Quantity	Per Unit Price	SMUD ESTIMATE	TOTAL SMUD	Year	Age in 2004	%/yr	Depr	% Cond	FERC Acct	Survivor Curve	ASL	Age % of ASL	Unadjusted Depreciation	Net Salvage %	Adjusted Depreciation	HANDY-WHITMAN Line No.	Year Installed	7/31/04	Factor	RCN	SMUD RCNLD	SMUD OC	SMUD OCLD
RISERS																									
Three-phase Riser 12 kV 3 # 1000 MCM AL.	Unit	56	496			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Three-phase Riser 12 kV 3 # 350 MCM AL.	Unit	-	408			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Three-phase Riser 12 kV 3 # 4/0 AWG AL.	Unit	2	408			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Three-phase Riser 12 kV 3 # 1/0 AWG AL.	Unit	154	371			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Three-phase Riser 12 kV 2 # 1/0 AWG AL.	Unit	11	371			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
		223																							
SMUD																									
Three-phase Riser 12 kV 3- 1000 kcmil AL.		58	$ 937	$ 54,346		1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723	$54,346	**$24,142**	**$31,104**	**$13,817**
Three-phase Riser 12 kV 3- # 2 AWG AL.		165	$ 704	$ 116,160		1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723	$116,160	**$51,602**	**$66,482**	**$29,533**
Assumes pole is existing in the field.		**223**		**$ 170,506**	**$ 170,506**																	$170,506	$75,744	$97,585	$43,350
SWITCHES																									
Overhead three-phase Switch	Unit	109	3,615			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Three single-phase Cutouts.	Set	48	1,594			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Two single-phase Cutouts	Set	48	1,063			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Pad Mounted Switch PMH4	Unit	8	5,534			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Pad Mounted Switch PMH 43W	Unit	20	6,824			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Pad Mounted Switch PMH6	Unit	1	8,207			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Pad Mounted Switch PMH9	Unit	18	9,796			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Subsurface 600 A 2 Ways.	Unit	13	6,824			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Subsurface 600 A 3 Ways, 2 Ways switched.	Unit	10	6,824			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Subsurface 600 A 3 Ways, 3 Ways switched.	Unit	7	6,917			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Subsurface 200 A Fused Switch.	Unit	16	6,917			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Recloser	Unit	6	9,404			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
		303																							
SMUD																									
Overhead three-phase gang operated switch		109	$ 4,338	$ 472,842		1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723	$472,842	**$210,051**	**$270,620**	**$120,218**
Three single-phase Cutouts.	Set	48	$ 711	$ 33,773		1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723	$33,773	**$15,003**	**$19,329**	**$8,586**
Two single-phase Cutouts	Set	48	$ 581	$ 27,598		1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723	$27,598	**$12,260**	**$15,795**	**$7,017**
Pad Mounted Switch PMH9		93	$ 13,000	$ 1,209,000		1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723	$1,209,000	**$537,074**	**$691,943**	**$307,382**
Recloser		6	$ 31,000	$ 186,000		1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723	$186,000	**$82,627**	**$106,453**	**$47,290**
		303		**$ 1,929,212**	**$ 1,929,212**																	$1,929,212	$857,014	$1,104,140	$490,492
SMUD does not install single-phase cutout switches																									
SMUD does not install sub-surface switches																									
Assumes pole is existing in the field.																									
CAPACITORS BANKS.																									
Overhead Capacitors Bank 3 x 100 kVAR .	Unit	-	4,458			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Overhead Capacitors Bank 3 x 200 kVAR .	Unit	5	4,458			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Overhead Capacitors Bank 3 x 300 kVAR.	Unit	26	4,458			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Overhead Capacitors Bank 3 x 300 kVAR., 3 x 200 kVAR	Unit	-	8,272			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Overhead Capacitors Bank 6 x 100 kVAR.	Unit	-	8,272			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Overhead Capacitors Bank 6 x 200 kVAR.	Unit	2	8,272			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Overhead Capacitors Bank 6 x 300 kVAR.	Unit	15	8,272			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Overhead Capacitors Bank 3 x 200 and 3 x 100 kVAR.	Unit	-	8,272			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Pad Mounted Capacitors Bank 3 x 300 kVAR.	Unit	3	6,071			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Pad Mounted Capacitors Bank 6 x 300 kVAR.	Unit	1	11,174			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
		52																							
SMUD																									
Overhead Capacitors Bank 3 x 200 kVAR .		31	4,338	$ 134,478		1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723	$134,478	**$59,739**	**$76,965**	**$34,190**
Overhead Capacitors Bank 6 x 200 kVAR.		21	$ 10,600	$ 222,600		1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723	$222,600	**$98,886**	**$127,400**	**$56,595**
		52		**$ 357,078**	**$ 357,078**																	$357,078	$158,625	$204,365	$90,785
SMUD does not install padmount capacitor banks.																									
Assumes pole is existing in the field.																									
REGULATORS																									
4 Step Voltage Regulator	Unit	1	1,764			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
32 Step Voltage Regulator	Unit	-	2,137			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
		1																							
SMUD																									
32 step voltage regulator		1	$ 20,000	$ 20,000		1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723	$20,000	**$8,885**	**$11,447**	**$5,085**
SMUD does not install 4-step regulators				**$ 20,000**	**$ 20,000**																	$20,000	$8,885	$11,447	$5,085
Assumes poles are existing in the field.																									
					$ 60,403,894																				

SMUD Annexation Study				Estimated RCNLD and OCLD Values																		SMUD			
Davis				Straight Line Depreciation																		Using Beck Methdology			
				SMUD	TOTAL													HANDY-WHITMAN					SMUD	SMUD	SMUD
Description	Unit	Quantity	Per Unit Price	ESTIMATE	SMUD	Year	Age in 2004	%/yr	Depr	% Cond	FERC Acct	Survivor Curve	ASL	Age % of ASL	Unadjusted Depreciation	Net Salvage %	Adjusted Depreciation	Line No.	Year Installed	7/31/04	Factor	RCN	RCNLD	OC	OCLD
SUBSTATIONS																									
Davis	MVA	120.00	60,277			1989	15	1.5%	23%	78%	362	L0	43	**35%**	19.78%	0%	19.78%	43	299	444	0.6734				
Hunt	MVA	10.50	92,245			1989	15	1.5%	23%	78%	362	L0	43	**35%**	19.78%	0%	19.78%	43	299	444	0.6734				
		130.50																							
SMUD																									
SUBSTATIONS				0																					
						1,989																$0			
Davis	MVA	120.00		5,406,493		1989	15	1.5%	23%	78%	362	L0	43	**35%**	19.78%	0%	19.78%	43	299	444	0.6734	$5,406,493	**$4,337,088**	**$3,640,859**	**$2,920,697**
Hunt	MVA	10.50		80,000		1989	15	1.5%	23%	78%	362	L0	43	**35%**	19.78%	0%	19.78%	43	299	444	0.6734	$80,000	**$64,176**	**$53,874**	**$43,218**
		130.50		**5,486,493**	**5,486,493**																	$5,486,493	$4,401,264	$3,694,733	$2,963,914
FEEDERS																									
12 kv Overhead feeder,																									
3 # 715.5 MCM AL	mi	25.28	44,338			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
3 # 397.5 MCM AL	mi	10.57	39,408			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
3 # 4/0 AWG AL	mi	10.57	36,588			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
3 # 2/0 AWG AL	mi	12.18	25,236			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
3 # 1/0 AWG AL	mi	0.57	21,462			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
3 # 2 AWG AL	mi	47.23	21,565			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
2 # 2 AWG AL	mi	9.05	14,377			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
3 # 4 AWG AL	mi	25.59	21,565			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
2 # 4 AWG AL	mi	5.41	14,377			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
2 # 6 AWG CU	mi	0.16	8,611			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
2 # 6 AWG CU	mi	-	8,611			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
		146.59																							
SMUD			$ / mile																						
3-795 kcmil AAC		25.28	$ 92,541	$ 2,339,000		1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723	$2,338,969	**$1,039,040**	**$1,338,655**	**$594,671**
3-477 kcmil AAC		21.14	$ 82,368	$ 1,741,000		1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723	$1,741,002	**$773,405**	**$996,423**	**$442,641**
3-# 1/0 AAAC		85.56	$ 78,848	$ 6,746,600		1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723	$6,746,580	**$2,997,033**	**$3,861,250**	**$1,715,283**
1-# 1/0 AAAC		14.61	52,592	$ 768,600		1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723	$768,561	**$341,418**	**$439,868**	**$195,403**
Includes poles, hardware, and loaded labor.		**146.59**		**$ 11,595,200**	**$ 11,595,200**																	$11,595,111	$5,150,896	$6,636,196	$2,947,997
12 Kv Underground feeder SUBURBAN Area																									
3 # 1250 MCM AL	mi	0.04	263,405			1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 1000 MCM AL	mi	5.66	263,405			1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 350 MCM AL	mi	7.91	235,615			1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 4/0 MCM AL	mi	-	235,615			1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 1/0 MCM AL	mi	31.99	223,600			1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
2 # 1/0 MCM AL	mi	38.15	196,294			1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
		83.75																							
SMUD			$ / mile																						
3-1000 kcmil AL		5.70	$ 342,371	$ 1,951,500		1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886	$1,951,515	**$1,210,236**	**$1,538,999**	**$954,414**
3-500 kcmil AL		7.91	$ 302,218	$ 2,390,500		1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886	$2,390,544	**$1,482,501**	**$1,885,226**	**$1,169,127**
3-#2 AL		70.14	$ 241,929	$ 16,968,900		1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886	$16,968,900	**$10,523,297**	**$13,381,978**	**$8,298,860**
		83.75		**$ 21,310,900**	**$ 21,310,900**																	$21,310,959	$13,216,034	$16,806,204	$10,422,401
12 Kv Underground feeder URBAN Area																									
3 # 1250 MCM AL	mi	0.01	468,419			1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 1000 MCM AL	mi	1.41	468,419			1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 350 MCM AL	mi	1.95	440,629			1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 4/0 MCM AL	mi	-	440,629			1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 1/0 MCM AL	mi	8.00	428,614			1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
2 # 1/0 MCM AL	mi	9.54	401,308			1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
		20.91																							
		104.66																							
SMUD			$ / mile																						
3-1000 kcmil AL		1.42	$ 377,659	$ 536,300		1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886	$536,276	**$332,572**	**$422,917**	**$262,273**
3-500 kcmil AL		1.95	$ 337,218	$ 657,600		1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886	$657,575	**$407,797**	**$518,575**	**$321,596**
3-#2 AL		17.54	$ 276,929	$ 4,857,300		1994	10	1.0%	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886	$4,857,335	**$3,012,286**	**$3,830,581**	**$2,375,542**
		20.91		**$ 6,051,200**	**$ 6,051,200**																	$6,051,186	$3,752,655	$4,772,073	$2,959,411
POLES																									
40 to 45 feets pole, with all hardwares and acce	Unit	3,571	2,103			1984	20	1.5%	30%	70%	364	L0	37	**54%**	27.29%	-35%	36.84%	44	266	448	0.5938				
		3,571																							
SMUD																						$0			
Costs included with OH conductor.					$ -																	$0	$0	$0	$0
TRANSFORMERS																									
OVERHEAD SINGLE - PHASE TRANSFORMERS																									
5 kVA	Unit	35	822			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x10 kVA	Unit	39	822			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x15 kVA	Unit	64	832			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x25 kVA	Unit	219	1,061			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x37.5 kVA	Unit	48	1,248			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x50 kVA	Unit	202	1,670			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x75 kVA	Unit	90	1,763			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x100 kVA	Unit	17	1,857			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x167 kVA	Unit	1.00	1,857			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				

SMUD Annexation Study — **Estimated RCNLD and OCLD Values**

Davis — **Straight Line Depreciation**

SMUD

Using Beck Methdology

Description	Unit	Quantity	Per Unit Price	SMUD ESTIMATE	TOTAL SMUD	Year	Age in 2004	%/yr	Depr	% Cond	FERC Acct	Survivor Curve	ASL	Age % of ASL	Unadjusted Depreciation	Net Salvage %	Adjusted Depreciation	HANDY-WHITMAN Line No.	Year Installed	7/31/04	Factor	RCN	SMUD RCNLD	SMUD OC	SMUD OCLD
		715																							
SMUD																									
10 kVA		74	822	$ 60,800		1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202	$60,836	**$39,831**	**$49,899**	**$32,670**
15 kVA		64	832	$ 53,300		1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202	$53,275	**$34,881**	**$43,698**	**$28,610**
25 kVA		219	1,061	$ 232,400		1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202	$232,427	**$152,175**	**$190,642**	**$124,818**
50 kVA		250	1,670	$ 417,500		1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202	$417,502	**$273,349**	**$342,446**	**$224,207**
75 kVA		90	1,763	$ 158,700		1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202	$158,710	**$103,911**	**$130,178**	**$85,230**
100 kVA		18.00	1,856.88	$ 33,400		1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202	$33,424	**$21,883**	**$27,415**	**$17,949**
SMUD does not install 37.5 kVA nor 167 kVA tx's		**715**		**$ 956,100**	**$ 956,100**																	$956,173	$626,030	$784,277	$513,485
OVERHEAD THREE - PHASE TRANSFORMERS																									
1x45 kVA	Unit	8	1,670			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x112.5 kVA	Unit	34	3,360			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x150 kVA	Unit	7	3,547			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x225 kVA	Unit	3.00	3,733			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
		52																							
SMUD																									
3-15 kVA		8	$ 2,494	$ 20,000		1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202	$19,952	**$13,063**	**$16,365**	**$10,715**
3-50 kVA		41	$ 4,069	$ 166,800		1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202	$166,829	**$109,227**	**$136,837**	**$89,591**
3-75 kVA		3.00	$ 5,117	$ 15,400		1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202	$15,351	**$10,051**	**$12,591**	**$8,244**
		52		**$ 202,200**	**$ 202,200**																	$202,132	$132,341	$165,794	$108,549
SMUD does not install overhead 3-phase transformers.																									
Used costs for 3-single phase OH transformer installation.																									
OVERHEAD THREE - PHASE TRANSFORMERS BANKS																									
3x10 kVA	Unit	8	2,466			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
3x15 kVA	Unit	6	2,497			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
3x25 kVA	Unit	30	3,184			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
3x37.5 kVA	Unit	4	3,745			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
3x50 kVA	Unit	9	5,010			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
3x75 kVA	Unit	-	5,290			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
3x100 kVA	Unit	-	10,079			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
3x167 kVA	Unit	-	10,640			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
3x250 kVA	Unit	-	11,200			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
3x500 kVA	Unit	-	11,200			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x10+1x5 kVA	Unit	1	2,466			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x10+1x25 kVA	Unit	-	2,706			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x10+1x37.5 kVA	Unit	-	2,892			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x10+1x50 kVA	Unit	-	3,314			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	45.71%	8%	42.05%	48	168	267	0.6292				
2x10+1x75 kVA	Unit	1	3,408			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x15+1x25 kVA	Unit	-	2,726			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x15+1x37.5 kVA	Unit	-	2,913			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x15+1x50 kVA	Unit	-	3,335			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x25+1x15 kVA	Unit	-	2,955			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x25+1x37.5 kVA	Unit	-	3,371			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x25+1x50 kVA	Unit	1	3,793			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x25+1x75 kVA	Unit	1	3,886			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x25+1x100 kVA	Unit	-	3,979			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x37.5+1x50 kVA	Unit	-	4,166			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x50+1x25 kVA	Unit	-	4,401			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x50+1x37.5 kVA	Unit	1	4,588			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x50+1x75 kVA	Unit	-	5,103			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
		62																							
SMUD																									
3-10 kVA		9	$ 2,448	$ 22,000		1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202	$22,032	**$14,425**	**$18,071**	**$11,832**
3-15 kVA		6	$ 2,494	$ 15,000		1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202	$14,964	**$9,797**	**$12,274**	**$8,036**
3-25 kVA		30	$ 2,927	$ 87,800		1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202	$87,810	**$57,491**	**$72,024**	**$47,156**
3-50 kVA		15	$ 4,069	$ 61,000		1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202	$61,035	**$39,961**	**$50,062**	**$32,777**
3-75 kVA		2	5,117	$ 10,200		1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202	$10,234	**$6,700**	**$8,394**	**$5,496**
3-100 kVA			5,593	$ -		1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202	$0			
1-750 kVA Padmount		-	$ 13,054	$ -		1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202	$0			
1-1500 kVA Padmount		-	$ 23,439	$ -		1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202	$0			
SMUD does not install 37.5 nor 167 kVA OH tx's		**62**		**$ 196,000**	**$ 196,000**																	$196,075	$128,375	$160,826	$105,296
OVERHEAD TWO TRANSFORMERS BANKS																									
1x5 + 1x25 kVA	Unit	1	1,510			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x5 + 1x37.5 kVA	Unit	2	1,790			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x10 + 1x15 kVA	Unit	1	1,655			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x10 + 1x25 kVA	Unit	7	1,883			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x10 + 1x37.5 kVA	Unit	-	2,070			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x10 + 1x50 kVA	Unit	2	2,492			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x10 + 1x75 kVA	Unit	2	2,586			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x10 + 1x100 kVA	Unit	-	2,679			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x15 + 1x25 kVA	Unit	3	1,894			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x15 + 1x37.5 kVA	Unit	-	2,081			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x15 + 1x50 kVA	Unit	1	2,502			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x15 + 1x75 kVA	Unit	-	2,596			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x15 + 1x100 kVA	Unit	-	2,689			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x25 + 1x37.5 kVA	Unit	2	2,309			1984	20	1.5%	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				

SMUD Annexation Study — **Estimated RCNLD and OCLD Values**

Davis — **Straight Line Depreciation**

SMUD

Using Beck Methdology

Description	Unit	Quantity	Per Unit Price	SMUD ESTIMATE	TOTAL SMUD	Year	Age in 2004	%/yr	Depr	% Cond	FERC Acct	Survivor Curve	ASL	Age % of ASL	Unadjusted Depreciation	Net Salvage %	Adjusted Depreciation	HANDY-WHITMAN Line No.	Year Installed	7/31/04	Factor	RCN	SMUD RCNLD	SMUD OC	SMUD OCLD
1x25 + 1x50 kVA	Unit	8	2,731			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
1x25 + 1x75 kVA	Unit	2	2,825			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
1x25 + 1x100 kVA	Unit	-	2,918			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
1x37.5 + 1x50 kVA	Unit	1	2,918			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
1x50 + 1x75 kVA	Unit	-	3,433			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
1x50 + 1x100 kVA	Unit	-	3,527			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x5 kVA	Unit	3	1,644			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x10 kVA	Unit	15	1,644			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x15 kVA	Unit	10	1,665			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x25 kVA	Unit	22	2,123			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x37.5 kVA	Unit	-	2,496			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x50 kVA	Unit	1	3,340			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x75 kVA	Unit	1	3,527			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x100 kVA	Unit	-	3,714			1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
		84																							
SMUD																									
2x10 kVA		18	$ 2,032	$ 36,600		1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202	$36,576	**$23,947**	**$30,001**	**$19,642**
2x15 kVA		11	$ 2,017	$ 22,200		1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202	$22,187	**$14,526**	**$18,198**	**$11,915**
2x25 kVA		33	$ 2,306	$ 76,100		1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202	$76,098	**$49,823**	**$62,417**	**$40,866**
2x50 kVA		17	$ 3,422	$ 58,200		1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202	$58,174	**$38,088**	**$47,716**	**$31,241**
2x75 kVA		5	$ 3,884	$ 19,400		1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202	$19,420	**$12,715**	**$15,929**	**$10,429**
2x100 kVA			$ 4,262	$ -		1984	20	1.5%	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202	$0			
SMUD does not install 37.5 nor 167 kVA OH tx's		**84**		**$ 212,500**	**$ 212,500**																	$212,455	$139,099	$174,261	$114,093
PAD MOUNTED SINGLE-PHASE TRANSFORI																									
1x15 kVA	Unit	1	1,432			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x25 kVA	Unit	-	1,432			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x37.5 kVA	Unit	4	1,850			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x50 kVA	Unit	91	1,850			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x75 kVA	Unit	80	2,454			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x100 kVA	Unit	170	2,870			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x167 kVA	Unit	2	2,964			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
		348																							
SMUD																									
1-50 kVA		96	$ 2,183	$ 209,600		1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674	$209,568	**$137,209**	**$97,950**	**$64,130**
1-75 kVA		80	$ 2,603	$ 208,200		1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674	$208,240	**$136,340**	**$97,330**	**$63,724**
1-100 kVA		172	$ 2,892	$ 497,400		1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674	$497,424	**$325,675**	**$232,492**	**$152,218**
		348		**$ 915,200**	**$ 915,200**																	$915,232	$599,224	$427,771	$280,072
PAD MOUNTED THREE-PHASE TRANSFORM																									
1x45 kVA	Unit	6	2,124			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x67.5 kVA	Unit	-	3,780			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x75 kVA	Unit	8	3,780			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x112.5 kVA	Unit	-	4,309			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x150 kVA	Unit	111	7,186			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x225 kVA	Unit	-	8,058			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x300 kVA	Unit	48	8,930			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x500 kVA	Unit	26	10,844			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x750 kVA	Unit	11	15,126			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x1000 kVA	Unit	5	16,294			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x1500 kVA	Unit	4	24,818			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x2000 kVA	Unit	1	30,039			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x2500 kVA	Unit	-	30,039			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x3000 kVA	Unit	-	30,039			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x5000 kVA	Unit	-	30,039			1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
		220																							
SMUD																									
1-75 kVA		14	$ 5,855	$ 82,000		1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674	$81,970	**$53,668**	**$38,312**	**$25,084**
1-150 kVA		111	$ 6,870	$ 762,600		1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674	$762,570	**$499,273**	**$356,419**	**$233,356**
1-300 kVA		48	$ 8,481	$ 407,100		1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674	$407,088	**$266,530**	**$190,269**	**$124,574**
1-500 kVA		26	$ 11,157	$ 290,100		1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674	$290,082	**$189,924**	**$135,582**	**$88,769**
1-750 kVA		11	$ 13,054	$ 143,600		1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674	$143,594	**$94,014**	**$67,115**	**$43,942**
1-1000 kVA		5	$ 17,451	$ 87,300		1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674	$87,255	**$57,128**	**$40,782**	**$26,701**
1-1500 kVA		5	$ 23,439	$ 117,200		1984	20	1.5%	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674	$117,195	**$76,730**	**$54,776**	**$35,863**
SMUD does not stock tx's larger than 2500 kVA	**parallel ur**	**220**		**$ 1,889,900**	**$ 1,889,900**																	$1,889,754	$1,237,267	$883,255	$578,288
SUBSURFACE SINGLE - PHASE TRANSFORI																									
1x50 kVA	Unit	146	2,124			1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696				
1x75 kVA	Unit	-	2,541			1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696				
1x100 kVA	Unit	337	2,957			1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696				
		483																							
SMUD																									
1-50 kVA		146	$ 2,603	$ 380,000		1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696	$380,038	**$314,027**	**$254,460**	**$210,262**
1-75 kVA		-	$ 2,603	$ -		1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696	$0			
1-100 kVA		337	$ 2,892	$ 974,600		1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696	$974,604	**$805,319**	**$652,561**	**$539,214**
SMUD does not install sub-surface transformers,		**483**		**$ 1,354,600**	**$ 1,354,600**																	$1,354,642	$1,119,346	$907,021	$749,475
Cost here is for padmount transformers & loaded labor to install.																									
SUBSURFACE THREE - PHASE TRANSFORMERS																									

SMUD Annexation Study		Estimated RCNLD and OCLD Values																						SMUD		
Davis		Straight Line Depreciation																						Using Beck Methdology		
																			HANDY-WHITMAN							
Description		Unit	Quantity	Per Unit Price	SMUD ESTIMATE	TOTAL SMUD	Year	Age in 2004	%/yr	Depr	% Cond	FERC Acct	Survivor Curve	ASL	Age % of ASL	Unadjusted Depreciation	Net Salvage %	Adjusted Depreciation	Line No.	Year Installed	7/31/04	Factor	RCN	SMUD RCNLD	SMUD OC	SMUD OCLD
1x112.5 kVA		Unit	-	4,303			1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696				
1x150 kVA		Unit	8	7,290			1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696				
1x225 kVA		Unit	-	8,162			1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696				
1x300 kVA		Unit	9	9,034			1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696				
1x500 kVA		Unit	18	10,965			1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696				
1x1000 kVA		Unit	1	15,265			1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696				
1x1500 kVA		Unit		25,096			1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696				
1x2500 kVA		Unit		30,318			1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696				
1x3000 kVA		Unit		30,318			1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696				
			36																							
SMUD																										
1-150 kVA			8	$ 6,870	$ 55,000		1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696	$54,960	**$45,414**	**$36,799**	**$30,407**
1-300 kVA			9	$ 8,481	$ 76,300		1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696	$76,329	**$63,071**	**$51,107**	**$42,230**
1-500 kVA			18	$ 11,157	$ 200,800		1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696	$200,826	**$165,943**	**$134,466**	**$111,110**
1-1000 kVA			1	$ 17,451	$ 17,500		1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696	$17,451	**$14,420**	**$11,685**	**$9,655**
1-1500 kVA			-	$ 23,439	$ -		1994	10	1.0%	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696	$0			
SMUD does not stock tx's larger than 2500 kVA		**parallel ur**	**36**		**$ 349,600**	**$ 349,600**																	$349,566	$288,848	$234,057	$193,402
SMUD does not install sub-surface transformers,																										
Cost here is for padmount transformers & loaded labor to install.																										
OVERHEAD LOW VOLTAGE CIRCUITS																										
1C Triplex # 4/0 AWG AL Bare		mi	7.38	20,796			1984	20	1.5%	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
3 # 4/0 AWG AL Bare		mi	7.38	30,668			1984	20	1.5%	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
			14.75																							
SMUD																										
3 # 1/0 AWG AL Bare		mi	7.38	$ 19,875	$ 146,600		1984	20	1.5%	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723	$146,578	**$65,114**	**$83,891**	**$37,267**
3 # 4/0 AWG AL Bare		mi	7.38	$ 19,875	$ 146,600		1984	20	1.5%	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723	$146,578	**$65,114**	**$83,891**	**$37,267**
			14.75		**$ 293,200**	**$ 293,200**																				
																							$293,156	$130,229	$167,781	$74,533
UNDERGROUND LOW VOLTAGE CIRCUIT																										
3 # 4/0 AWG AL 600V		mi	11.38	129,403			1994	10	1.0%	10%	90%	367	S3	31	32%	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 350 AWG AL		mi	6.00	129,403			1994	10	1.0%	10%	90%	367	S3	31	32%	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 700 AWG AL		mi	50.55	129,403			1994	10	1.0%	10%	90%	367	S3	31	32%	31.92%	-19%	37.98%	47	291	369	0.7886				
			67.93																							
SMUD																										
3 # 4/0 AWG AL 600V		mi	11.38	$ 102,827	$ 1,169,800		1994	10	1.0%	10%	90%	367	S3	31	32%	31.92%	-19%	37.98%	47	291	369	0.7886	$1,169,756	**$725,427**	**$922,491**	**$572,084**
3 # 350 AWG AL		mi	6.00	$ 105,933	$ 635,600		1994	10	1.0%	10%	90%	367	S3	31	32%	31.92%	-19%	37.98%	47	291	369	0.7886	$635,600	**$394,169**	**$501,246**	**$310,848**
3 # 500 CU (Eq 700 AWG Al)		mi	50.55	$ 114,867	$ 5,806,500		1994	10	1.0%	10%	90%	367	S3	31	32%	31.92%	-19%	37.98%	47	291	369	0.7886	$5,806,510	**$3,600,919**	**$4,579,118**	**$2,839,749**
			67.93		**$ 7,611,900**	**7,611,900**																	$7,611,866	$4,720,514	$6,002,854	$3,722,682
Distribution Rights of Way																										
Rights of Way			-	-			1984	20	1.5%	30%	70%	370	R2	32	63%	50.80%	0%	50.80%	52	213	324	0.6574				
			-																							
SMUD																										
Rights of Way		Unit	63	3,500	$ 219,100		1984	20	1.5%	30%	70%	370	R2	32	63%	50.80%	0%	50.80%	52	213	324	0.6574	$219,111	**$219,111**	**$219,111**	**$219,111**
			63		**$ 219,100**	**$ 219,100**																				
SERVICE DROP																										
Overhead Low Voltage single-phase Service Drop, 50 Feet																										
1C Triplex # 6 AWG AL.	155	Unit	172	294			1984	20	1.5%	30%	70%	369.1	R4	43	47%	46.04%	-45%	66.76%	50	255	393	0.6489				
1C Triplex # 2 AWG AL.	121	Unit	134	311			1984	20	1.5%	30%	70%	369.1	R4	43	47%	46.04%	-45%	66.76%	50	255	393	0.6489				
1C Triplex # 1/0 AWG de AL.	###	Unit	4,114	327			1984	20	1.5%	30%	70%	369.1	R4	43	47%	46.04%	-45%	66.76%	50	255	393	0.6489				
1C Triplex # 4/0 AWG de AL.	6	Unit	7	327			1984	20	1.5%	30%	70%	369.1	R4	43	47%	46.04%	-45%	66.76%	50	255	393	0.6489				
1 C Quadruplex # 1/0 AWG AL.	92	Unit	102	534			1984	20	1.5%	30%	70%	369.1	R4	43	47%	46.04%	-45%	66.76%	50	255	393	0.6489				
1 C Quadruplex # 4/0 AWG de AL.	43	Unit	48	534			1984	20	1.5%	30%	70%	369.1	R4	43	47%	46.04%	-45%	66.76%	50	255	393	0.6489				
2 # 1/0 AWG. (phases) y 1 # 2 AWG (neut	###	Unit	12,334	309			1984	20	1.5%	30%	70%	369.1	R4	43	47%	46.04%	-45%	66.76%	50	255	393	0.6489				
2 # 350 MCM. (phases) y 1 # 4/0 AWG (ne	45	Unit	50	364			1984	20	1.5%	30%	70%	369.1	R4	43	47%	46.04%	-45%	66.76%	50	255	393	0.6489				
2 # 1000 MCM. (phases) y 1 # 350 MCM (	17	Unit	19	373			1984	20	1.5%	30%	70%	369.1	R4	43	47%	46.04%	-45%	66.76%	50	255	393	0.6489				
	###		**16,980**																							
SMUD																										
ALL SVC 2-1/0 AWG 1#2 AWG			**16,980**	$ 321	**$ 5,450,600**	**5,450,600**	1984											0.6676				0.6489	$5,450,634	**$1,811,900**	**$3,536,671**	**$1,175,660**
																							$5,450,634	$1,811,900	$3,536,671	$1,175,660
Assumes pole is existing in the field.																										
Overhead Low Voltage three-phase Service D																										
1 C Quadruplex # 1/0 AWG AL.	-	Unit	-	534			1984	20	1.5%	30%	70%	369.2	R4	43	47%	46.04%	-45%	66.76%	51	218	275	0.7927				
1 C Quadruplex # 4/0 AWG de AL.	-	Unit	-	534			1984	20	1.5%	30%	70%	369.2	R4	43	47%	46.04%	-45%	66.76%	51	218	275	0.7927				
3 # 1/0 AWG (phases) y 1 # 2 AWG (neutr	6	Unit	7	411			1984	20	1.5%	30%	70%	369.2	R4	43	47%	46.04%	-45%	66.76%	51	218	275	0.7927				
3 # 4/0 AWG (phases) y 1 # 1/0 AWG (neu	8	Unit	9	449			1984	20	1.5%	30%	70%	369.2	R4	43	47%	46.04%	-45%	66.76%	51	218	275	0.7927				
3 # 350 MCM (phases) y 1 # 4/0 AWG (ne	40	Unit	44	489			1984	20	1.5%	30%	70%	369.2	R4	43	47%	46.04%	-45%	66.76%	51	218	275	0.7927				
3 # 1000 MCM (phases) y 1 # 350 MCM (r	135	Unit	150	498			1984	20	1.5%	30%	70%	369.2	R4	43	47%	46.04%	-45%	66.76%	51	218	275	0.7927				
2 circuits 3 # 1000 MCM (phases) y 1 # 3	72	Unit	80	621			1984	20	1.5%	30%	70%	369.2	R4	43	47%	46.04%	-45%	66.76%	51	218	275	0.7927				
3 circuits 3 # 1000 MCM (phases) y 1 # 35	49	Unit	55	745			1984	20	1.5%	30%	70%	369.2	R4	43	47%	46.04%	-45%	66.76%	51	218	275	0.7927				
5 circuits 3 # 1000 MCM (phases) y 1 # 35	4	Unit	4	993			1984	20	1.5%	30%	70%	369.2	R4	43	47%	46.04%	-45%	66.76%	51	218	275	0.7927				
7 circuits 3 # 1000 MCM (phases) y 1 # 35	1	Unit	1	1,241			1984	20	1.5%	30%	70%	369.2	R4	43	47%	46.04%	-45%	66.76%	51	218	275	0.7927				
9 circuits 3 # 1000 MCM (phases) y 1 # 35	-	Unit	-	1,488			1984	20	1.5%	30%	70%	369.2	R4	43	47%	46.04%	-45%	66.76%	51	218	275	0.7927				
	315		**350**																							
SMUD																										

SMUD Annexation Study — **Estimated RCNLD and OCLD Values**

Davis — **Straight Line Depreciation**

SMUD

Using Beck Methdology

Description		Unit	Quantity	Per Unit Price	SMUD ESTIMATE	TOTAL SMUD	Year	Age in 2004	%/yr	Depr	% Cond	FERC Acct	Survivor Curve	ASL	Age % of ASL	Unadjusted Depreciation	Net Salvage %	Adjusted Depreciation	HANDY-WHITMAN Line No.	HANDY-WHITMAN Year Installed	HANDY-WHITMAN 7/31/04	Factor	RCN	SMUD RCNLD	SMUD OC	SMUD OCLD
All OH Commercial Serices	14		9	$ 800	$ 7,100		1,984											0.6676				0.7927	$7,060	$2,347	$5,596	$1,860
All UG Commercial Serices	301		190	$ 750	$ 142,300		1,984											0.6676				0.7927	$142,299	$47,303	$112,804	$37,498
Assumes pole is existing in the field.	315		199		149,400	149,400																	$149,358	$49,650	$118,401	$39,359
Underground Service Drop																										
All UG service drops	###	Unit	9,038	1,021			1984	20	2.0%	40%	60%	370	R2	32	63%	50.80%	0%	50.80%	52	213	324	0.6574				
	###		9,038																							
SMUD																										
All UG service drops	###	Unit	9,038	1,021	$ 9,228,200		1,984											0.5080				0.6574	$9,228,217	$4,540,283	$6,066,698	$2,984,815
	###		9,038		$ 9,228,200	$ 9,228,200																	$9,228,217	$4,540,283	$6,066,698	$2,984,815
Meters																										
Residential	###	Unit	25,508	131			1984	20	2.0%	40%	60%	370	R2	32	63%	50.80%	0%	50.80%	52	213	324	0.6574				
Commercial	###	Unit	1,342	290			1984	20	2.0%	40%	60%	370	R2	32	63%	50.80%	0%	50.80%	52	213	324	0.6574				
Industrial	1	Unit	1	538			1984	20	2.0%	40%	60%	370	R2	32	63%	50.80%	0%	50.80%	52	213	324	0.6574				
	###		26,851																							
SMUD																										
Residential	###		25,508	$ 68	$ 1,734,500		1,984											0.5080				0.6574	$1,734,526	$853,387	$1,140,290	$561,023
Commercial	###		1,342	$ 144	$ 193,300		1,984											0.5080				0.6574	$193,315	$95,111	$127,087	$62,527
Industrial	1		1	245	$ 200		1,984											0.5080				0.6574	$245	$121	$161	$79
	###		26,851		$ 1,928,000	$ 1,928,000																	$1,928,087	$948,619	$1,267,538	$623,629
Used Above estimate																										
RISERS																										
Three-phase Riser 12 kV 3 # 1000 MCM AL.		Unit	27	496			1984	20	2.0%	40%	60%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Three-phase Riser 12 kV 3 # 350 MCM AL.		Unit	12	408			1984	20	2.0%	40%	60%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Three-phase Riser 12 kV 3 # 4/0 AWG AL.		Unit	1	408			1984	20	2.0%	40%	60%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Three-phase Riser 12 kV 3 # 1/0 AWG AL.		Unit	105	371			1984	20	2.0%	40%	60%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Three-phase Riser 12 kV 2 # 1/0 AWG AL.		Unit	68	371			1984	20	2.0%	40%	60%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
			213																							
SMUD																										
Three-phase Riser 12 kV 3- 1000 kcmil AL.			40	$ 937	$ 37,480		1984											0.5558				0.5723	$37,480	$16,650	$21,451	$9,529
Three-phase Riser 12 kV 3- # 2 AWG AL.			173	$ 704	$ 121,792		1984											0.5558				0.5723	$121,792	$54,104	$69,705	$30,965
Assumes pole is existing in the field.			213		$ 159,272	$ 159,272																	$159,272	$70,753	$91,156	$40,494
SWITCHES																										
Overhead three-phase Switch		Unit	118	3,615			1984	20	1.5%	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Three single-phase Cutouts.		Set	67	1,594			1984	20	1.5%	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Two single-phase Cutouts		Set	41	1,063			1984	20	1.5%	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Pad Mounted Switch PMH4		Unit	7	5,534			1984	20	1.5%	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Pad Mounted Switch PMH 43W		Unit	29	6,824			1984	20	1.5%	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Pad Mounted Switch PMH6		Unit	1	8,207			1984	20	1.5%	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Pad Mounted Switch PMH9		Unit	1	9,796			1984	20	1.5%	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Subsurface 600 A 2 Ways.		Unit	27	6,824			1984	20	1.5%	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Subsurface 600 A 3 Ways, 2 Ways switched.		Unit	22	6,824			1984	20	1.5%	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Subsurface 600 A 3 Ways, 3 Ways switched.		Unit	17	6,917			1984	20	1.5%	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Subsurface 200 A Fused Switch.		Unit	4	6,917			1984	20	1.5%	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Recloser		Unit	8	9,404			1984	20	1.5%	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
			342																							
SMUD																										
Overhead three-phase gang operated switch			118	$ 3,100	$ 365,800		1984											0.5558				0.5723	$365,800	$162,499	$209,357	$93,003
Three single-phase Cutouts.		Set	67	$ 711	$ 47,637		1984											0.5558				0.5723	$47,637	$21,162	$27,264	$12,111
Two single-phase Cutouts		Set	41	$ 581	$ 23,821		1984											0.5558				0.5723	$23,821	$10,582	$13,633	$6,056
Pad Mounted Switch PMH9			108	$ 13,000	$ 1,404,000		1984											0.5558				0.5723	$1,404,000	$623,699	$803,547	$356,960
Recloser			8	$ 31,000	$ 248,000		1984											0.5558				0.5723	$248,000	$110,169	$141,937	$63,053
			342		$ 2,089,258	$ 2,089,258																	$2,089,258	$928,111	$1,195,739	$531,183
SMUD does not install single-phase cutout switches																										
SMUD does not install sub-surface switches																										
Assumes pole is existing in the field.																										
CAPACITORS BANKS.																										
Overhead Capacitors Bank 3 x 100 kVAR .		Unit	2	4,458			1984	20	1.5%	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Overhead Capacitors Bank 3 x 200 kVAR .		Unit	2	4,458			1984	20	1.5%	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Overhead Capacitors Bank 3 x 300 kVAR.		Unit	20	4,458			1984	20	1.5%	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Overhead Capacitors Bank 3 x 300 kVAR., 3 x 2		Unit	1	8,272			1984	20	1.5%	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Overhead Capacitors Bank 6 x 100 kVAR.		Unit	-	8,272			1984	20	1.5%	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Overhead Capacitors Bank 6 x 200 kVAR.		Unit	1	8,272			1984	20	1.5%	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Overhead Capacitors Bank 6 x 300 kVAR.		Unit	22	8,272			1984	20	1.5%	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Overhead Capacitors Bank 3 x 200 and 3 x 100		Unit	-	8,272			1984	20	1.5%	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Pad Mounted Capacitors Bank 3 x 300 kVAR.		Unit	-	6,071			1984	20	1.5%	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Pad Mounted Capacitors Bank 6 x 300 kVAR.		Unit	6	11,174			1984	20	1.5%	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
			54																							
SMUD																										
Overhead Capacitors Bank 3 x 200 kVAR .			4	4,338	$ 17,352		1984											0.5558				0.5723	$17,352	$7,708	$9,931	$4,412
Overhead Capacitors Bank 6 x 200 kVAR.			50	$ 10,600	$ 530,000		1984											0.5558				0.5723	$530,000	$235,442	$303,333	$134,750
			54		$ 547,352	$ 547,352																	$547,352	$243,150	$313,264	$139,161
SMUD does not install padmount capacitor banks.							1984																			
Assumes pole is existing in the field.																										
REGULATORS																										

SMUD Annexation Study — Estimated RCNLD and OCLD Values

Davis — Straight Line Depreciation

SMUD — Using Beck Methdology

Description	Unit	Quantity	Per Unit Price	SMUD ESTIMATE	TOTAL SMUD	Year	Age in 2004	%/yr	Depr	% Cond	FERC Acct	Survivor Curve	ASL	Age % of ASL	Unadjusted Depreciation	Net Salvage %	Adjusted Depreciation	HANDY-WHITMAN Line No.	HANDY-WHITMAN Year Installed	HANDY-WHITMAN 7/31/04	HANDY-WHITMAN Factor	RCN	SMUD RCNLD	SMUD OC	SMUD OCLD
4 Step Voltage Regulator	Unit	2	1,764			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
32 Step Voltage Regulator	Unit	1	2,137			1984	20	1.5%	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
		3																							
SMUD																									
32 step voltage regulator		3	$ 20,000	$ 60,000		1,984											0.5558				0.5723	$60,000	**$26,654**	**$34,340**	**$15,255**
SMUD does not install 4-step regulators				**$ 60,000**	**$ 60,000**																	$60,000	$26,654	$34,340	$15,255
Assumes poles are existing in the field.																									
					$ 78,256,175																				

SMUD Annexation Study — Estimated RCNLD and OCLD Values

Plainfield — Straight Line Depreciation

SMUD — Using Beck Methdology

Description	Unit	Quantity	Per Unit Price	SMUD ESTIMATE	TOTAL SMUD	Year	Age in 2004	Depr	% Cond	FERC Acct	Survivor Curve	ASL	Age % of ASL	Unadjusted Depreciation	Net Salvage %	Adjusted Depreciation	HANDY-WHITMAN Line No.	Year Installed	7/31/04	Factor	RCN	SMUD RCNLD	SMUD OC	SMUD OCLD
SUBSTATIONS																								
																0.00%								
Plainfield	MVA	12.00	48,831			1979	25	38%	63%	362	L0	43	**58%**	28.76%	0%	28.76%	43	187	444	0.4212				
		12.00																						
SMUD																								
SUBSTATIONS				0																				
																					$0			
																0.00%				0.4212	$0			
Plainfield	MVA	12.00		977,666		1,979										28.76%				0.4212	$977,666	**$696,489**	**$411,765**	**$293,341**
		12.00		**977,666**	**977,666**															0.4212	$977,666	$696,489	$411,765	$293,341
FEEDERS																								
12 kv Overhead feeder,																								
3 # 715.5 MCM AL	mi	2.26	44,338			1979	25	38%	63%	365	R1	37	**68%**	45.95%	-49%	68.47%	45	196	477	0.4109				
3 # 397.5 MCM AL	mi	5.60	39,408			1979	25	38%	63%	365	R1	37	**68%**	45.95%	-49%	68.47%	45	196	477	0.4109				
3 # 4/0 AWG AL	mi	3.07	36,588			1979	25	38%	63%	365	R1	37	**68%**	45.95%	-49%	68.47%	45	196	477	0.4109				
3 # 2/0 AWG AL	mi	14.27	25,236			1979	25	38%	63%	365	R1	37	**68%**	45.95%	-49%	68.47%	45	196	477	0.4109				
3 # 1/0 AWG AL	mi	-	21,462			1984	20	38%	63%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
3 # 2 AWG AL	mi	12.57	21,565			1979	25	38%	63%	365	R1	37	**68%**	45.95%	-49%	68.47%	45	196	477	0.4109				
2 # 2 AWG AL	mi	2.45	14,377			1979	25	38%	63%	365	R1	37	**68%**	45.95%	-49%	68.47%	45	196	477	0.4109				
3 # 4 AWG AL	mi	24.40	21,565			1979	25	38%	63%	365	R1	37	**68%**	45.95%	-49%	68.47%	45	196	477	0.4109				
2 # 4 AWG AL	mi	3.19	14,377			1979	25	38%	63%	365	R1	37	**68%**	45.95%	-49%	68.47%	45	196	477	0.4109				
3 # 6 AWG CU	mi	-	12,917			1984	20	38%	63%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
2 # 6 AWG CU	mi	-	8,611			1984	20	38%	63%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
		67.81																						
SMUD			$ / mile																					
3-795 kcmil AAC		2.26	$ 92,541	$ 209,100		1,979										68.47%				41.09%	$209,084	**$65,934**	**$85,913**	**$27,092**
3-477 kcmil AAC		8.67	$ 82,368	$ 714,200		1,979										68.47%				41.09%	$714,182	**$225,214**	**$293,458**	**$92,541**
3-# 1/0 AAAC		51.24	$ 78,848	$ 4,040,000		1,979										68.47%				41.09%	$4,039,974	**$1,273,986**	**$1,660,031**	**$523,483**
1-# 1/0 AAAC		5.64	52,592	$ 296,700		1,979										55.58%				57.23%	$296,748	**$131,824**	**$169,837**	**$75,447**
Includes poles, hardware, and loaded labor.		**67.81**		**$ 5,260,000**	**$ 5,260,000**																$5,259,989	$1,696,958	$2,209,240	$718,562
12 Kv Underground feeder SUBURBAN Area																								
3 # 1250 MCM AL	mi	-	263,405			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 1000 MCM AL	mi	-	263,405			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 350 MCM AL	mi	-	235,615			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 4/0 MCM AL	mi	-	235,615			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 1/0 MCM AL	mi	-	223,600			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
2 # 1/0 MCM AL	mi	1.36	196,294			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
		1.36																						
SMUD			$ / mile																					
3-1000 kcmil AL		-	$ 342,371	$ -		1,994										37.98%				0.7886	$0			
3-500 kcmil AL		-	$ 302,218	$ -		1,994										37.98%				0.7886	$0			
3-#2 AL		1.36	$ 241,929	$ 329,000		1,994										37.98%				0.7886	$329,023	**$204,045**	**$259,474**	**$160,913**
		1.36		**$ 329,000**	**$ 329,000**																$329,023	$204,045	$259,474	$160,913
12 Kv Underground feeder URBAN Area																								
3 # 1250 MCM AL	mi	-	468,419			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 1000 MCM AL	mi		468,419			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 350 MCM AL	mi		440,629			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 4/0 MCM AL	mi		440,629			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 1/0 MCM AL	mi		428,614			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
2 # 1/0 MCM AL	mi	0.03	401,308			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
		0.03																						
SMUD			$ / mile																					
3-1000 kcmil AL		-	$ 377,659	$ -		1,994										37.98%				0.7886	$0			
3-500 kcmil AL		-	$ 337,218	$ -		1,994										37.98%				0.7886	$0			
3-#2 AL		0.03	$ 276,929	$ 9,400		1,994										37.98%				0.7886	$9,416	**$5,839**	**$7,425**	**$4,605**
		0.03		**$ 9,400**	**$ 9,400**																$9,416	$5,839	$7,425	$4,605
POLES																								
40 to 45 feets pole, with all hardwares and acce	Unit	1,348	2,103			1979	25	38%	63%	364	L0	37	**68%**	32.32%	-35%	43.63%	44	197	448	0.4397				
		1,348																						
SMUD																43.63%				0.4397	$0			
Costs included with OH conductor.					**$ -**																$0	$0	$0	$0
TRANSFORMERS																								
OVERHEAD SINGLE - PHASE TRANSFORMERS																								
5 kVA	Unit	-	822			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x10 kVA	Unit	38	822			1979	25	30%	70%	368.1	R0.5	32	**78%**	45.71%	8%	42.05%	48	168	267	0.6292				
1x15 kVA	Unit	16	832			1979	25	30%	70%	368.1	R0.5	32	**78%**	45.71%	8%	42.05%	48	168	267	0.6292				
1x25 kVA	Unit	62	1,061			1979	25	30%	70%	368.1	R0.5	32	**78%**	45.71%	8%	42.05%	48	168	267	0.6292				
1x37.5 kVA	Unit	11	1,248			1979	25	30%	70%	368.1	R0.5	32	**78%**	45.71%	8%	42.05%	48	168	267	0.6292				
1x50 kVA	Unit	28	1,670			1979	25	30%	70%	368.1	R0.5	32	**78%**	45.71%	8%	42.05%	48	168	267	0.6292				
1x75 kVA	Unit	24	1,763			1979	25	30%	70%	368.1	R0.5	32	**78%**	45.71%	8%	42.05%	48	168	267	0.6292				
1x100 kVA	Unit	12	1,857			1979	25	30%	70%	368.1	R0.5	32	**78%**	45.71%	8%	42.05%	48	168	267	0.6292				
1x167 kVA	Unit	-	1,857			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				

SMUD Annexation Study | **Estimated RCNLD and OCLD Values** | **SMUD**

Plainfield | **Straight Line Depreciation** | **Using Beck Methdology**

Description	Unit	Quantity	Per Unit Price	SMUD ESTIMATE	TOTAL SMUD	Year	Age in 2004	Depr	% Cond	FERC Acct	Survivor Curve	ASL	Age % of ASL	Unadjusted Depreciation	Net Salvage %	Adjusted Depreciation	HANDY-WHITMAN Line No.	HANDY-WHITMAN Year Installed	HANDY-WHITMAN 7/31/04	HANDY-WHITMAN Factor	RCN	SMUD RCNLD	SMUD OC	SMUD OCLD
		191																						
SMUD																								
10 kVA		38	822	$ 31,200		1979										42.05%				0.6292	$31,240	**$18,103**	**$19,657**	**$11,390**
15 kVA		16	832	$ 13,300		1979										42.05%				0.6292	$13,319	**$7,718**	**$8,380**	**$4,856**
25 kVA		62	1,061	$ 65,800		1979										42.05%				0.6292	$65,801	**$38,130**	**$41,403**	**$23,992**
50 kVA		39	1,670	$ 65,100		1979										42.05%				0.6292	$65,130	**$37,741**	**$40,981**	**$23,747**
75 kVA		24	1,763	$ 42,300		1979										42.05%				0.6292	$42,323	**$24,525**	**$26,630**	**$15,431**
100 kVA		12.00	1,856.88	$ 22,300		1979										42.05%				0.6292	$22,283	**$12,912**	**$14,020**	**$8,124**
SMUD does not install 37.5 kVA tx's		**191**		**$ 240,000**	**$ 240,000**																$240,095	$139,128	$151,071	$87,541
OVERHEAD THREE - PHASE TRANSFORMERS																								
1x45 kVA	Unit	8	1,670			1979	25	38%	63%	368.1	R0.5	32	**78%**	45.71%	8%	42.05%	48	168	267	0.6292				
1x112.5 kVA	Unit	1	3,360			1979	25	38%	63%	368.1	R0.5	32	**78%**	45.71%	8%	42.05%	48	168	267	0.6292				
1x150 kVA	Unit	11	3,547			1979	25	38%	63%	368.1	R0.5	32	**78%**	45.71%	8%	42.05%	48	168	267	0.6292				
1x225 kVA	Unit	-	3,733			1984	20	38%	63%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
		20																						
SMUD																								
3-15 kVA		8	$ 2,494	$ 20,000		1,979										42.05%				0.6292	$19,952	**$11,562**	**$12,554**	**$7,275**
3-50 kVA		12	$ 4,069	$ 48,800		1,979										42.05%				0.6292	$48,828	**$28,294**	**$30,723**	**$17,803**
3-75 kVA		-	$ 5,117	$ -		1,979										42.05%				0.6292	$0			
		20		**$ 68,800**	**$ 68,800**																$68,780	$39,856	$43,277	$25,078
SMUD does not install overhead 3-phase transformers.																								
Used costs for 3-single phase OH transformer installation.																								
OVERHEAD THREE - PHASE TRANSFORMERS BANKS																								
3x10 kVA	Unit	12	2,466			1979	25	38%	63%	368.1	R0.5	32	**78%**	45.71%	8%	42.05%	48	168	267	0.6292				
3x15 kVA	Unit	-	2,497			1984	20	38%	63%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
3x25 kVA	Unit	12	3,184			1979	25	38%	63%	368.1	R0.5	32	**78%**	45.71%	8%	42.05%	48	168	267	0.6292				
3x37.5 kVA	Unit	2	3,745			1979	25	38%	63%	368.1	R0.5	32	**78%**	45.71%	8%	42.05%	48	168	267	0.6292				
3x50 kVA	Unit	4	5,010			1979	25	38%	63%	368.1	R0.5	32	**78%**	45.71%	8%	42.05%	48	168	267	0.6292				
3x75 kVA	Unit	2	5,290			1979	25	38%	63%	368.1	R0.5	32	**78%**	45.71%	8%	42.05%	48	168	267	0.6292				
3x100 kVA	Unit	-	10,079			1984	20	38%	63%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
3x167 kVA	Unit	-	10,640			1984	20	38%	63%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
3x250 kVA	Unit	-	11,200			1984	20	38%	63%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
3x500 kVA	Unit	-	11,200			1984	20	38%	63%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x10+1x5 kVA	Unit	-	2,466			1984	20	38%	63%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x10+1x25 kVA	Unit	1	2,706			1979	25	38%	63%	368.1	R0.5	32	**78%**	45.71%	8%	42.05%	48	168	267	0.6292				
2x10+1x37.5 kVA	Unit	-	2,892			1984	20	38%	63%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x10+1x50 kVA	Unit	1	3,314			1979	25	38%	63%	368.1	R0.5	32	**78%**	45.71%	8%	42.05%	48	168	267	0.6292				
2x10+1x75 kVA	Unit	-	3,408			1984	20	38%	63%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x15+1x25 kVA	Unit	-	2,726			1984	20	38%	63%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x15+1x37.5 kVA	Unit	-	2,913			1984	20	38%	63%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x15+1x50 kVA	Unit	-	3,335			1984	20	38%	63%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x25+1x15 kVA	Unit	-	2,955			1984	20	38%	63%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x25+1x37.5 kVA	Unit	-	3,371			1984	20	38%	63%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x25+1x50 kVA	Unit	-	3,793			1984	20	38%	63%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x25+1x75 kVA	Unit	-	3,886			1984	20	38%	63%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x25+1x100 kVA	Unit	-	3,979			1984	20	38%	63%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x37.5+1x50 kVA	Unit	1	4,166			1979	25	38%	63%	368.1	R0.5	32	**78%**	45.71%	8%	42.05%	48	168	267	0.6292				
2x50+1x25 kVA	Unit	-	4,401			1984	20	38%	63%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x50+1x37.5 kVA	Unit	-	4,588			1984	20	38%	63%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x50+1x75 kVA	Unit	-	5,103			1984	20	38%	63%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
		35																						
SMUD																								
3-10 kVA		12	$ 2,448	$ 29,400		1979										34.53%				0.8202	$29,376	**$19,233**	**$24,095**	**$15,776**
3-15 kVA		-	$ 2,494	$ -		1979										34.53%				0.8202	$0			
3-25 kVA		13	$ 2,927	$ 38,100		1979										34.53%				0.8202	$38,051	**$24,913**	**$31,210**	**$20,434**
3-50 kVA		8	$ 4,069	$ 32,600		1979										34.53%				0.8202	$32,552	**$21,313**	**$26,700**	**$17,481**
3-75 kVA		2	5,117	$ 10,200		1979										42.05%				0.6292	$10,234	**$5,930**	**$6,439**	**$3,731**
3-100 kVA		-	5,593	$ -		1979										34.53%				0.8202	$0			
1-750 kVA Padmount		-	$ 13,054	$ -		1979										34.53%				0.8202	$0			
1-1500 kVA Padmount		-	$ 23,439	$ -		1979										34.53%				0.8202	$0			
SMUD does not install 37.5 nor 167 kVA OH tx's		**35**		**$ 110,300**	**$ 110,300**																$110,213	$71,389	$88,445	$57,422
OVERHEAD TWO TRANSFORMERS BANKS																								
1x5 + 1x25 kVA	Unit	-	1,510			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x5 + 1x37.5 kVA	Unit	-	1,790			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x10 + 1x15 kVA	Unit	-	1,655			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x10 + 1x25 kVA	Unit	7	1,883			1979	25	30%	70%	368.1	R0.5	32	**78%**	45.71%	8%	42.05%	48	168	267	0.6292				
1x10 + 1x37.5 kVA	Unit	3	2,070			1979	25	30%	70%	368.1	R0.5	32	**78%**	45.71%	8%	42.05%	48	168	267	0.6292				
1x10 + 1x50 kVA	Unit	1	2,492			1979	25	30%	70%	368.1	R0.5	32	**78%**	45.71%	8%	42.05%	48	168	267	0.6292				
1x10 + 1x75 kVA	Unit	1	2,586			1979	25	30%	70%	368.1	R0.5	32	**78%**	45.71%	8%	42.05%	48	168	267	0.6292				
1x10 + 1x100 kVA	Unit	-	2,679			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x15 + 1x25 kVA	Unit	2	1,894			1979	25	30%	70%	368.1	R0.5	32	**78%**	45.71%	8%	42.05%	48	168	267	0.6292				
1x15 + 1x37.5 kVA	Unit	1	2,081			1979	25	30%	70%	368.1	R0.5	32	**78%**	45.71%	8%	42.05%	48	168	267	0.6292				
1x15 + 1x50 kVA	Unit	-	2,502			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x15 + 1x75 kVA	Unit	-	2,596			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x15 + 1x100 kVA	Unit	-	2,689			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x25 + 1x37.5 kVA	Unit	2	2,309			1979	25	30%	70%	368.1	R0.5	32	**78%**	45.71%	8%	42.05%	48	168	267	0.6292				

SMUD Annexation Study — **Estimated RCNLD and OCLD Values**

Plainfield — **Straight Line Depreciation**

SMUD

Using Beck Methdology

Description	Unit	Quantity	Per Unit Price	SMUD ESTIMATE	TOTAL SMUD	Year	Age in 2004	Depr	% Cond	FERC Acct	Survivor Curve	ASL	Age % of ASL	Unadjusted Depreciation	Net Salvage %	Adjusted Depreciation	HANDY-WHITMAN Line No.	HANDY-WHITMAN Year Installed	HANDY-WHITMAN 7/31/04	HANDY-WHITMAN Factor	RCN	SMUD RCNLD	SMUD OC	SMUD OCLD
1x25 + 1x50 kVA	Unit	2	2,731			1979	25	30%	70%	368.1	R0.5	32	**78%**	45.71%	8%	42.05%	48	168	267	0.6292				
1x25 + 1x75 kVA	Unit	-	2,825			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x25 + 1x100 kVA	Unit	-	2,918			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x37.5 + 1x50 kVA	Unit	-	2,918			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x50 + 1x75 kVA	Unit	-	3,433			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x50 + 1x100 kVA	Unit	-	3,527			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x5 kVA	Unit	-	1,644			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x10 kVA	Unit	6	1,644			1979	25	30%	70%	368.1	R0.5	32	**78%**	45.71%	8%	42.05%	48	168	267	0.6292				
2x15 kVA	Unit	2	1,665			1979	25	30%	70%	368.1	R0.5	32	**78%**	45.71%	8%	42.05%	48	168	267	0.6292				
2x25 kVA	Unit	21	2,123			1979	25	30%	70%	368.1	R0.5	32	**78%**	45.71%	8%	42.05%	48	168	267	0.6292				
2x37.5 kVA	Unit	-	2,496			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x50 kVA	Unit	7	3,340			1979	25	30%	70%	368.1	R0.5	32	**78%**	45.71%	8%	42.05%	48	168	267	0.6292				
2x75 kVA	Unit	-	3,527			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x100 kVA	Unit	-	3,714			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
		55																						
SMUD																								
2x10 kVA		6	$ 2,032	$ 12,200		1,979										42.05%				62.92%	$12,192	**$7,065**	**$7,671**	**$4,445**
2x15 kVA		2	$ 2,017	$ 4,000		1,979										42.05%				62.92%	$4,034	**$2,338**	**$2,538**	**$1,471**
2x25 kVA		30	$ 2,306	$ 69,200		1,979										34.53%				82.02%	$69,180	**$45,294**	**$56,743**	**$37,151**
2x50 kVA		16	$ 3,422	$ 54,800		1,979										34.53%				82.02%	$54,752	**$35,847**	**$44,909**	**$29,403**
2x75 kVA		1	$ 3,884	$ 3,900		1,979										34.53%				82.02%	$3,884	**$2,543**	**$3,186**	**$2,086**
2x100 kVA		-	$ 4,262	$ -		1,979										42.05%				62.92%	$0			
SMUD does not install 37.5 nor 167 kVA OH tx's		**55**		**$ 144,100**	**$ 144,100**																$144,042	$93,087	$115,047	$74,556
PAD MOUNTED SINGLE-PHASE TRANSFORI																								
1x15 kVA	Unit	-	1,432			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x25 kVA	Unit	-	1,432			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x37.5 kVA	Unit	-	1,850			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x50 kVA	Unit	4	1,850			1979	25	30%	70%	368.2	R0.5	32	**78%**	45.71%	8%	42.05%	49	144	460	0.3130				
1x75 kVA	Unit	-	2,454			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x100 kVA	Unit	-	2,870			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x167 kVA	Unit	-	2,964			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
		4																						
SMUD																								
1-50 kVA		4	$ 2,183	$ 8,700		1984										42.05%				31.30%	$8,732	**$5,060**	**$2,733**	**$1,584**
1-75 kVA		0	$ 2,603	$ -		1984										42.05%				31.30%	$0			
1-100 kVA		0	$ 2,892	$ -		1984										42.05%				31.30%	$0			
		4		**$ 8,700**	**$ 8,700**																$8,732	$5,060	$2,733	$1,584
Pad Mounted Three-Phase Transformers																								
1x45 kVA	Unit	-	2,124			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x67.5 kVA	Unit	-	3,780			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x75 kVA	Unit	-	3,780			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x112.5 kVA	Unit	-	4,309			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x150 kVA	Unit	-	7,186			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x225 kVA	Unit	-	8,058			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x300 kVA	Unit	-	8,930			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x500 kVA	Unit	-	10,844			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x750 kVA	Unit	-	15,126			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x1000 kVA	Unit	-	16,294			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x1500 kVA	Unit	-	24,818			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x2000 kVA	Unit	-	30,039			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x2500 kVA	Unit	-	30,039			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x3000 kVA	Unit	-	30,039			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x5000 kVA	Unit	-	30,039			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
		-																						
SMUD																								
1-75 kVA		-	$ 5,855	$ -		1984										34.53%				46.74%	$0			
1-150 kVA		-	$ 6,870	$ -		1984										34.53%				46.74%	$0			
1-300 kVA		-	$ 8,481	$ -		1984										34.53%				46.74%	$0			
1-500 kVA		-	$ 11,157	$ -		1984										34.53%				46.74%	$0			
1-750 kVA		-	$ 13,054	$ -		1984										34.53%				46.74%	$0			
1-1000 kVA		-	$ 17,451	$ -		1984										34.53%				46.74%	$0			
1-1500 kVA		-	$ 23,439	$ -		1984										34.53%				46.74%	$0			
SMUD does not stock tx's larger than 2500 kVA	**parallel ur**	**-**		**$ -**	**$ -**																$0	$0	$0	$0
SUBSURFACE SINGLE - PHASE TRANSFORI																								
1x50 kVA	Unit	8	2,124			1994	10	38%	63%	368.2	R0.5	32	**31%**	18.88%	8%	17.37%	49	308	460	0.6696				
1x100 kVA	Unit	3	2,957			1994	10	38%	63%	368.2	R0.5	32	**31%**	18.88%	8%	17.37%	49	308	460	0.6696				
1x100 kVA	Unit	-	2,957			1994	10	38%	63%	368.2	R0.5	32	**31%**	18.88%	8%	17.37%	49	308	460	0.6696				
		11																						
SMUD																								
1-50 kVA		8	$ 2,183	$ 17,500		1994										17.37%				66.96%	$17,464	**$14,431**	**$11,693**	**$9,662**
1-75 kVA		-	$ 2,603	$ -		1994										17.37%				66.96%	$0			
1-100 kVA		3	$ 2,892	$ 8,700		1994										17.37%				66.96%	$8,676	**$7,169**	**$5,809**	**$4,800**
SMUD does not install sub-surface transformers,		**11**		**$ 26,200**	**$ 26,200**																$26,140	$21,600	$17,502	$14,462
Cost here is for padmount transformers & loaded labor to install.																								
SUBSURFACE THREE - PHASE TRANSFORMERS																								

SMUD Annexation Study — Estimated RCNLD and OCLD Values

Plainfield — Straight Line Depreciation

SMUD — Using Beck Methdology

Description		Unit	Quantity	Per Unit Price	SMUD ESTIMATE	TOTAL SMUD	Year	Age in 2004	Depr	% Cond	FERC Acct	Survivor Curve	ASL	Age % of ASL	Unadjusted Depreciation	Net Salvage %	Adjusted Depreciation	HANDY-WHITMAN Line No.	Year Installed	7/31/04	Factor	RCN	SMUD RCNLD	SMUD OC	SMUD OCLD
1x112.5 kVA		Unit	-	4,303			1994	10	10%	90%	368.2	R0.5	32	**31%**	18.88%	8%	17.37%	49	308	460	0.6696				
1x150 kVA		Unit	-	7,290			1994	10	10%	90%	368.2	R0.5	32	**31%**	18.88%	8%	17.37%	49	308	460	0.6696				
1x225 kVA		Unit	-	8,162			1994	10	10%	90%	368.2	R0.5	32	**31%**	18.88%	8%	17.37%	49	308	460	0.6696				
1x300 kVA		Unit	2	9,034			1994	10	10%	90%	368.2	R0.5	32	**31%**	18.88%	8%	17.37%	49	308	460	0.6696				
1x500 kVA		Unit	-	10,965			1994	10	10%	90%	368.2	R0.5	32	**31%**	18.88%	8%	17.37%	49	308	460	0.6696				
1x1000 kVA		Unit	-	15,265			1994	10	10%	90%	368.2	R0.5	32	**31%**	18.88%	8%	17.37%	49	308	460	0.6696				
1x1500 kVA		Unit	-	25,096			1994	10	10%	90%	368.2	R0.5	32	**31%**	18.88%	8%	17.37%	49	308	460	0.6696				
1x2500 kVA		Unit	-	30,318			1994	10	10%	90%	368.2	R0.5	32	**31%**	18.88%	8%	17.37%	49	308	460	0.6696				
1x3000 kVA		Unit	-	30,318			1994	10	10%	90%	368.2	R0.5	32	**31%**	18.88%	8%	17.37%	49	308	460	0.6696				
			2																						
SMUD																									
1-150 kVA			-	$ 6,870	$ -		1,994										17.37%				66.96%	$0			
1-300 kVA			2	$ 8,481	$ 17,000		1,994										17.37%				66.96%	$16,962	**$14,016**	**$11,357**	**$9,384**
1-500 kVA			-	$ 11,157	$ -		1,994										17.37%				66.96%	$0			
1-1000 kVA			-	$ 17,451	$ -		1,994										17.37%				66.96%	$0			
1-1500 kVA			-	$ 23,439	$ -		1,994										17.37%				66.96%	$0			
SMUD does not stock tx's larger than 2500 kVA **parallel ur**			**2**		**$ 17,000**	**$ 17,000**																$16,962	$14,016	$11,357	$9,384
SMUD does not install sub-surface transformers,																									
Cost here is for padmount transformers & loaded labor to install.																									
OVERHEAD LOW VOLTAGE CIRCUITS																									
1C Triplex # 4/0 AWG AL Bare		mi	1.28	20,796			1979	25	38%	63%	365	R1	37	**68%**	45.95%	-49%	68.47%	45	196	477	0.4109				
3 # 4/0 AWG AL Bare		mi	1.28	30,668			1979	25	38%	63%	365	R1	37	**68%**	45.95%	-49%	68.47%	45	196	477	0.4109				
			2.55																						
SMUD																									
3 # 1/0 AWG AL Bare		mi	1.28	$ 19,875	$ 25,300		1979										68.47%				41.09%	$25,341	**$7,991**	**$10,413**	**$3,284**
3 # 4/0 AWG AL Bare		mi	1.28	$ 19,875	$ 25,300		1979										68.47%				41.09%	$25,341	**$7,991**	**$10,413**	**$3,284**
			2.55		**$ 50,600**	**$ 50,600**																			
Assumes pole is existing in the field																						$50,681	$15,982	$20,825	$6,567
UNDERGROUND LOW VOLTAGE CIRCUIT																									
3 # 4/0 AWG AL 600V		mi	0.58	129,403			1994	10	38%	63%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 350 AWG AL		mi	-	129,403			1994	10	38%	63%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 700 AWG AL		mi	0.45	129,403			1994	10	38%	63%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
			1.03																						
SMUD																									
3 # 4/0 AWG AL 600V		mi	0.58	$ 102,827	$ 59,200		1,994										37.98%				78.86%	$59,228	**$36,730**	**$46,708**	**$28,966**
3 # 350 AWG AL		mi		$ 105,933	$ -		1,994										37.98%				78.86%	$0			
3 # 500 CU (Eq 700 AWG Al)		mi	0.45	$ 114,867	$ 51,700		1,994										37.98%				78.86%	$51,690	**$32,056**	**$40,764**	**$25,280**
			1.03		**$ 110,900**	**$ 110,900**																$110,918	$68,786	$87,472	$54,246
Distribution Rights of Way																									
Rights of Way			-	-			1984	20	30%	70%	370	R2	32	**63%**	50.80%	0%	50.80%	52	213	324	0.6574				
			-																						
SMUD																									
Rights of Way		Unit	15	3,500	$ 50,900		1984	20	30%	70%	370	R2	32	**63%**	50.80%	0%	50.80%	52	213	324	0.6574	$50,922	**$50,922**	**$50,922**	**$50,922**
			15		**$ 50,900**	**$ 50,900**																			
SERVICE DROP																									
Overhead Low Voltage single-phase Service Drop, 50 Feet																									
1C Triplex # 6 AWG AL.	67	Unit	75	294			1979	25	38%	63%	369.1	R4	43	**58%**	55.91%	-45%	81.07%	50	181	393	0.4606				
1C Triplex # 2 AWG AL.	38	Unit	42	311			1979	25	38%	63%	369.1	R4	43	**58%**	55.91%	-45%	81.07%	50	181	393	0.4606				
1C Triplex # 1/0 AWG de AL.	667	Unit	742	327			1979	25	38%	63%	369.1	R4	43	**58%**	55.91%	-45%	81.07%	50	181	393	0.4606				
1C Triplex # 4/0 AWG de AL.	1	Unit	1	327			1979	25	38%	63%	369.1	R4	43	**58%**	55.91%	-45%	81.07%	50	181	393	0.4606				
1 C Quadruplex # 1/0 AWG AL.	70	Unit	78	534			1979	25	38%	63%	369.1	R4	43	**58%**	55.91%	-45%	81.07%	50	181	393	0.4606				
1 C Quadruplex # 4/0 AWG de AL.	18	Unit	20	534			1979	25	38%	63%	369.1	R4	43	**58%**	55.91%	-45%	81.07%	50	181	393	0.4606				
2 # 1/0 AWG. (phases) y 1 # 2 AWG (neut	122	Unit	136	309			1979	25	38%	63%	369.1	R4	43	**58%**	55.91%	-45%	81.07%	50	181	393	0.4606				
2 # 350 MCM. (phases) y 1 # 4/0 AWG (ne	13	Unit	14	364			1979	25	38%	63%	369.1	R4	43	**58%**	55.91%	-45%	81.07%	50	181	393	0.4606				
2 # 1000 MCM. (phases) y 1 # 350 MCM (	105	Unit	117	373			1979	25	38%	63%	369.1	R4	43	**58%**	55.91%	-45%	81.07%	50	181	393	0.4606				
	###		**1,225**																						
SMUD																									
ALL SVC 2-1/0 AWG 1#2 AWG			**1,225**	$ 321	**$ 393,100**	**393,100**	1979										81.07%				46.06%	$393,144	**$74,424**	**$181,066**	**$34,277**
																						$393,144	$74,424	$181,066	$34,277
Assumes pole is existing in the field.																									
Overhead Low Voltage three-phase Service D																									
1 C Quadruplex # 1/0 AWG AL.	-	Unit	-	534			1984	20	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
1 C Quadruplex # 4/0 AWG de AL.	-	Unit	-	534			1984	20	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
3 # 1/0 AWG (phases) y 1 # 2 AWG (neutr	3	Unit	3	411			1979	25	30%	70%	369.2	R4	43	**58%**	55.91%	-45%	81.07%	51	145	275	0.5273				
3 # 4/0 AWG (phases) y 1 # 1/0 AWG (neu	-	Unit	-	449			1984	20	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
3 # 350 MCM (phases) y 1 # 4/0 AWG (ne	3	Unit	3	489			1979	25	30%	70%	369.2	R4	43	**58%**	55.91%	-45%	81.07%	51	145	275	0.5273				
3 # 1000 MCM (phases) y 1 # 350 MCM (r	15	Unit	17	498			1979	25	30%	70%	369.2	R4	43	**58%**	55.91%	-45%	81.07%	51	145	275	0.5273				
2 circuits 3 # 1000 MCM (phases) y 1 # 3	4	Unit	4	621			1979	25	30%	70%	369.2	R4	43	**58%**	55.91%	-45%	81.07%	51	145	275	0.5273				
3 circuits 3 # 1000 MCM (phases) y 1 # 35	-	Unit	-	745			1984	20	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
5 circuits 3 # 1000 MCM (phases) y 1 # 35	-	Unit	-	993			1984	20	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
7 circuits 3 # 1000 MCM (phases) y 1 # 35	-	Unit	-	1,241			1984	20	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
9 circuits 3 # 1000 MCM (phases) y 1 # 35	-	Unit	-	1,488			1984	20	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
	25		**28**																						
SMUD																									

SMUD Annexation Study — Estimated RCNLD and OCLD Values

Plainfield — Straight Line Depreciation

SMUD — Using Beck Methdology

Description		Unit	Quantity	Per Unit Price	SMUD ESTIMATE	TOTAL SMUD	Year	Age in 2004	Depr	% Cond	FERC Acct	Survivor Curve	ASL	Age % of ASL	Unadjusted Depreciation	Net Salvage %	Adjusted Depreciation	HANDY-WHITMAN Line No.	HANDY-WHITMAN Year Installed	HANDY-WHITMAN 7/31/04	Factor	RCN	SMUD RCNLD	SMUD OC	SMUD OCLD
All OH Commercial Serices	3		2	$ 800	$ 1,500		1,979										81.07%				52.73%	$1,513	$286	$798	$151
All UG Commercial Serices	22		14	$ 750	$ 10,400		1,979										81.07%				52.73%	$10,401	$1,969	$5,484	$1,038
Assumes pole is existing in the field.	25		16		11,900	11,900																$11,913	$2,255	$6,282	$1,189
Underground Service Drop																									
All UG service drops	###	Unit	772	1,021			1979	25	38%	63%	370	R2	32	78%	60.44%	0%	60.44%	52	154	324	0.4753				
	###		772																						
SMUD																									
All UG service drops	###	Unit	772	1,021	$ 787,700		1,979										60.44%				47.53%	$787,735	$311,628	$374,417	$148,120
	###		772		$ 787,700	$ 787,700																$787,735	$311,628	$374,417	$148,120
Meters																									
Residential	###	Unit	2,003	131			1979	25	38%	63%	370	R2	32	78%	60.44%	0%	60.44%	52	154	324	0.4753				
Commercial	122	Unit	105	290			1979	25	38%	63%	370	R2	32	78%	60.44%	0%	60.44%	52	154	324	0.4753				
Industrial	-	Unit	-	538			1979	25	38%	63%	370	R2	32	78%	60.44%	0%	60.44%	52	154	324	0.4753				
	###		970																						
SMUD																									
Residential	###		2,003	$ 68	$ 136,200		1,979										60.44%				47.53%	$136,229	$53,892	$64,751	$25,615
Commercial	122		105	$ 144	$ 15,100		1,979										60.44%				47.53%	$15,138	$5,988	$7,195	$2,846
Industrial	1		1	245	$ 200		1,979										60.44%				47.53%	$245	$97	$116	$46
	###	1,126	970		$ 151,500	$ 151,500																$151,611	$59,977	$72,062	$28,508
Used Above estimate																									
RISERS																									
Three-phase Riser 12 kV 3 # 1000 MCM AL.		Unit	-	496			1984	20	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Three-phase Riser 12 kV 3 # 350 MCM AL.		Unit	-	408			1984	20	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Three-phase Riser 12 kV 3 # 4/0 AWG AL.		Unit	-	408			1984	20	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Three-phase Riser 12 kV 3 # 1/0 AWG AL.		Unit	-	371			1984	20	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Three-phase Riser 12 kV 2 # 1/0 AWG AL.		Unit	11	371			1979	25	30%	70%	365	R1	37	68%	45.95%	-49%	68.47%	45	196	477	0.4109				
			11																						
SMUD																									
Three-phase Riser 12 kV 3- 1000 kcmil AL.			-	$ 937	$ -		1979										55.58%				57.23%	$0			
Three-phase Riser 12 kV 3- # 2 AWG AL.			11	$ 704	$ 7,744		1979										55.58%				57.23%	$7,744	$3,440	$4,432	$1,969
Assumes pole is existing in the field.			11		$ 7,744	$ 7,744																$7,744	$3,440	$4,432	$1,969
SWITCHES																									
Overhead three-phase Switch		Unit	25	3,615			1979	25	38%	63%	365	R1	37	68%	45.95%	-49%	68.47%	45	196	477	0.4109				
Three single-phase Cutouts.		Set	17	1,594			1979	25	38%	63%	365	R1	37	68%	45.95%	-49%	68.47%	45	196	477	0.4109				
Two single-phase Cutouts		Set	9	1,063			1979	25	38%	63%	365	R1	37	68%	45.95%	-49%	68.47%	45	196	477	0.4109				
Pad Mounted Switch PMH4		Unit	-	5,534			1984	20	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Pad Mounted Switch PMH 43W		Unit	-	6,824			1984	20	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Pad Mounted Switch PMH6		Unit	-	8,207			1984	20	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Pad Mounted Switch PMH9		Unit	-	9,796			1984	20	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Subsurface 600 A 2 Ways.		Unit	-	6,824			1984	20	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Subsurface 600 A 3 Ways, 2 Ways switched.		Unit	-	6,824			1984	20	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Subsurface 600 A 3 Ways, 3 Ways switched.		Unit	-	6,917			1984	20	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Subsurface 200 A Fused Switch.		Unit	-	6,917			1984	20	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Recloser		Unit	2	9,404			1979	25	38%	63%	365	R1	37	68%	45.95%	-49%	68.47%	45	196	477	0.4109				
			53																						
SMUD																									
Overhead three-phase gang operated switch			25	$ 4,338	$ 108,450		1979										68.47%				41.09%	$108,450	$34,199	$44,562	$14,052
Three single-phase Cutouts.		Set	17	$ 711	$ 12,087		1979										68.47%				41.09%	$12,087	$3,812	$4,967	$1,566
Two single-phase Cutouts		Set	9	$ 581	$ 5,229		1979										55.58%				57.23%	$5,229	$2,323	$2,993	$1,329
Pad Mounted Switch PMH9			-	$ 13,000	$ -		1979										55.58%				57.23%	$0			
Recloser			2	$ 31,000	$ 62,000		1979										55.58%				57.23%	$62,000	$27,542	$35,484	$15,763
			53		$ 187,766	$ 187,766																$187,766	$67,876	$88,006	$32,711
SMUD does not install single-phase cutout switches																									
SMUD does not install sub-surface switches																									
Assumes pole is existing in the field.																									
CAPACITORS BANKS.																									
Overhead Capacitors Bank 3 x 100 kVAR .		Unit	-	4,458			1984	20	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Overhead Capacitors Bank 3 x 200 kVAR .		Unit	7	4,458			1979	25	38%	63%	365	R1	37	68%	45.95%	-49%	68.47%	45	196	477	0.4109				
Overhead Capacitors Bank 3 x 300 kVAR.		Unit	-	4,458			1984	20	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Overhead Capacitors Bank 3 x 300 kVAR., 3 x 2		Unit	-	8,272			1984	20	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Overhead Capacitors Bank 6 x 100 kVAR.		Unit	1	8,272			1979	25	38%	63%	365	R1	37	68%	45.95%	-49%	68.47%	45	196	477	0.4109				
Overhead Capacitors Bank 6 x 200 kVAR.		Unit	-	8,272			1984	20	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Overhead Capacitors Bank 6 x 300 kVAR.		Unit	-	8,272			1984	20	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Overhead Capacitors Bank 3 x 200 and 3 x 100		Unit	-	8,272			1984	20	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Pad Mounted Capacitors Bank 3 x 300 kVAR.		Unit	-	6,071			1984	20	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
Pad Mounted Capacitors Bank 6 x 300 kVAR.		Unit	-	11,174			1984	20	30%	70%	365	R1	37	54%	37.30%	-49%	55.58%	45	273	477	0.5723				
			8																						
SMUD																									
Overhead Capacitors Bank 3 x 200 kVAR .			8	4,338	$ 34,704		1979										55.58%				57.23%	$34,704	$15,417	$19,862	$8,823
Overhead Capacitors Bank 6 x 200 kVAR.			-	$ 10,600	$ -		1979										55.58%				57.23%	$0			
			8		$ 34,704	$ 34,704	1979															$34,704	$15,417	$19,862	$8,823
SMUD does not install padmount capacitor banks.																									
Assumes pole is existing in the field.																									
REGULATORS																									

SMUD Annexation Study — **Estimated RCNLD and OCLD Values**

Plainfield — **Straight Line Depreciation**

SMUD

Using Beck Methdology

Description	Unit	Quantity	Per Unit Price	SMUD ESTIMATE	TOTAL SMUD	Year	Age in 2004	Depr	% Cond	FERC Acct	Survivor Curve	ASL	Age % of ASL	Unadjusted Depreciation	Net Salvage %	Adjusted Depreciation	HANDY-WHITMAN Line No.	HANDY-WHITMAN Year Installed	HANDY-WHITMAN 7/31/04	HANDY-WHITMAN Factor	RCN	SMUD RCNLD	SMUD OC	SMUD OCLD
4 Step Voltage Regulator	Unit	1	1,764			1979	25	38%	63%	365	R1	37	**68%**	45.95%	-49%	68.47%	45	196	477	0.4109				
32 Step Voltage Regulator	Unit	-	2,137			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
		1																						
SMUD																								
32 step voltage regulator		1	$ 20,000	$ 20,000		1,979										68.47%				41.09%	$20,000	**$6,307**	**$8,218**	**$2,592**
SMUD does not install 4-step regulators				**$ 20,000**	**$ 20,000**																$20,000	$6,307	$8,218	$2,592
Assumes poles are existing in the field.																								
					$ 8,997,980																			

SMUD Annexation Study — **Estimated RCNLD and OCLD Values**

Woodland — **Straight Line Depreciation**

SMUD

Using Beck Methdology

Description	Unit	Quantity	Per Unit Price	SMUD ESTIMATE	TOTAL SMUD	Year	Age in 2004	Depr	% Cond	FERC Acct	Survivor Curve	ASL	Age % of ASL	Unadjusted Depreciation	Net Salvage %	Adjusted Depreciation	HANDY-WHITMAN Line No.	HANDY-WHITMAN Year Installed	HANDY-WHITMAN 7/31/04	HANDY-WHITMAN Factor	RCN	SMUD RCNLD	SMUD OC	SMUD OCLD
SUBSTATIONS																								
Woodland	MVA	135.00	56,646			1984	20	30%	70%	362	L0	43	**47%**	24.63%	0%	24.63%	43	244	444	0.5495				
Tyco Plastics	MVA	10.50	79,672			1989	15	23%	78%	362	L0	43	**35%**	19.78%	0%	19.78%	43	299	444	0.6734				
		145.50																						
SMUD																								
SUBSTATIONS																								
																					$0			
Woodland	MVA	135.00	$ 32,488	4,385,873		1,984										24.63%				0.5495	$4,385,873	**$3,305,632**	**$2,410,255**	**$1,816,609**
Tyco Plastics	MVA	10.50	$ 7,619	80,000		1,989										19.78%				0.6734	$80,000	**$64,176**	**$53,874**	**$43,218**
		145.50		**4,465,873**	**4,465,873**																$4,465,873	$3,369,808	$2,464,128	$1,859,826
FEEDERS																								
12 kv Overhead feeder																								
3 # 715.5 MCM AL	mi	15.95	44,338			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
3 # 397.5 MCM AL	mi	7.50	39,408			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
3 # 4/0 AWG AL	mi	3.96	36,588			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
3 # 2/0 AWG AL	mi	0.54	25,236			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
3 # 1/0 AWG AL	mi	0.62	21,462			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
3 # 2 AWG AL	mi	44.42	21,565			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
2 # 2 AWG AL	mi	12.28	14,377			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
3 # 4 AWG AL	mi	14.87	21,565			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
2 # 4 AWG AL	mi	7.54	14,377			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
3 # 6 AWG CU	mi	-	12,917			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
2 # 6 AWG CU	mi	-	8,611			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
		107.69																						
SMUD			$ / mile																					
3-795 kcmil AAC		15.95	$ 92,541	$ 1,476,100		1,984										55.58%				0.5723	$1,476,084	**$655,721**	**$844,803**	**$375,287**
3-477 kcmil AAC		11.46	$ 82,368	$ 944,000		1,984										55.58%				0.5723	$944,040	**$419,371**	**$540,300**	**$240,017**
3-# 1/0 AAAC		60.46	$ 78,848	$ 4,766,900		1,984										55.58%				0.5723	$4,766,904	**$2,117,602**	**$2,728,228**	**$1,211,961**
1-# 1/0 AAAC		19.82	52,592	$ 1,042,300		1,984										55.58%				0.5723	$1,042,267	**$463,006**	**$596,518**	**$264,991**
Includes poles, hardware, and loaded labor.		**107.69**		**$ 8,229,300**	**$ 8,229,300**																$8,229,295	$3,655,700	$4,709,848	$2,092,256
12 Kv Underground feeder SUBURBAN Area																								
3 # 1250 MCM AL	mi	-	263,405			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 1000 MCM AL	mi	11.90	263,405			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 350 MCM AL	mi	2.75	235,615			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 4/0 MCM AL	mi	1.06	235,615			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 1/0 MCM AL	mi	19.93	223,600			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
2 # 1/0 MCM AL	mi	29.40	196,294			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
		65.04																						
SMUD			$ / mile																					
3-1000 kcmil AL		11.90	$342,371	$ 4,074,200		1,994										37.98%				0.7886	$4,074,215	**$2,526,633**	**$3,212,999**	**$1,992,548**
3-500 kcmil AL		2.75	$302,218	$ 831,100		1,994										37.98%				0.7886	$831,100	**$515,408**	**$655,420**	**$406,460**
3-#2 AL		50.39	$241,929	$ 12,190,800		1,994										37.98%				0.7886	$12,190,802	**$7,560,150**	**$9,613,885**	**$5,962,070**
		65.04		**$ 17,096,100**	**$17,096,100**																$17,096,117	$10,602,191	$13,482,303	$8,361,077
12 Kv Underground feeder URBAN Area																								
3 # 1250 MCM AL	mi	-	468,419			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 1000 MCM AL	mi	2.98	468,419			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 350 MCM AL	mi	0.69	440,629			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 4/0 MCM AL	mi	0.27	440,629			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 1/0 MCM AL	mi	4.98	428,614			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
2 # 1/0 MCM AL	mi	7.35	401,308			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
		16.27																						
SMUD			$ / mile																					
3-1000 kcmil AL		2.98	$377,659	$ 1,125,400		1,994										37.98%				0.7886	$1,125,424	**$697,934**	**$887,529**	**$550,403**
3-500 kcmil AL		0.69	$337,218	$ 232,700		1,994										37.98%				0.7886	$232,680	**$144,297**	**$183,496**	**$113,795**
3-#2 AL		12.60	$276,929	$ 3,489,300		1,994										37.98%				0.7886	$3,489,305	**$2,163,900**	**$2,751,729**	**$1,706,490**
		16.27		**$ 4,847,400**	**$ 4,847,400**																$4,847,410	$3,006,131	$3,822,754	$2,370,689
POLES																								
40 to 45 feets pole, with all hardwares and accessories	Unit	2,580	2,103			1984	20	30%	70%	364	L0	37	**54%**	27.29%	-35%	36.84%	44	266	448	0.5938				
		2,580																						
SMUD																36.84%				0.5938	$0			
Costs included with OH conductor.					**$ -**																$0	$0	$0	$0
TRANSFORMERS																								
OVERHEAD SINGLE - PHASE TRANSFORMERS																								
5 kVA	Unit	-	822			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x10 kVA	Unit	66	822			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x15 kVA	Unit	56	832			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x25 kVA	Unit	311	1,061			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x37.5 kVA	Unit	117	1,248			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x50 kVA	Unit	338	1,670			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x75 kVA	Unit	20	1,763			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x100 kVA	Unit	17	1,857			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x167 kVA	Unit	-	1,857			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				

SMUD Annexation Study	Estimated RCNLD and OCLD Values																				SMUD			
Woodland	Straight Line Depreciation																				Using Beck Methdology			
																	HANDY-WHITMAN							
Description	Unit	Quantity	Per Unit Price	SMUD ESTIMATE	TOTAL SMUD	Year	Age in 2004	Depr	% Cond	FERC Acct	Survivor Curve	ASL	Age % of ASL	Unadjusted Depreciation	Net Salvage %	Adjusted Depreciation	Line No.	Year Installed	7/31/04	Factor	RCN	SMUD RCNLD	SMUD OC	SMUD OCLD
		925																						
SMUD																								
10 kVA		66	822	$ 54,300		1984										34.53%				0.8202	$54,259	**$35,525**	**$44,504**	**$29,138**
15 kVA		56	832	$ 46,600		1984										34.53%				0.8202	$46,616	**$30,520**	**$38,235**	**$25,034**
25 kVA		311	1,061	$ 330,100		1984										34.53%				0.8202	$330,067	**$216,103**	**$270,729**	**$177,253**
50 kVA		455	1,670	$ 759,900		1984										34.53%				0.8202	$759,854	**$497,494**	**$623,251**	**$408,057**
75 kVA		20	1,763	$ 35,300		1984										34.53%				0.8202	$35,269	**$23,091**	**$28,928**	**$18,940**
100 kVA		17.00	1,856.88	$ 31,600		1984										34.53%				0.8202	$31,567	**$20,668**	**$25,892**	**$16,952**
SMUD does not install 37.5 kVA tx's		**925**		**$ 1,257,800**	**$ 1,257,800**																$1,257,631	$823,401	$1,031,540	$675,374
OVERHEAD THREE - PHASE TRANSFORMERS																								
1x45 kVA	Unit	3	1,670			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x112.5 kVA	Unit	12	3,360			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x150 kVA	Unit	5	3,547			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x225 kVA	Unit	1.00	3,733			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
		21																						
SMUD																								
3-15 kVA		3	$ 2,494	$ 7,500		1,984										34.53%				0.8202	$7,482	**$4,899**	**$6,137**	**$4,018**
3-50 kVA		17	$ 4,069	$ 69,200		1,984										34.53%				0.8202	$69,173	**$45,289**	**$56,737**	**$37,147**
3-75 kVA		1.00	$ 5,117	$ 5,100		1,984										34.53%				0.8202	$5,117	**$3,350**	**$4,197**	**$2,748**
		21		**$ 81,800**	**$ 81,800**																$81,772	$53,538	$67,071	$43,913
SMUD does not install overhead 3-phase transformers.																								
Used costs for 3-single phase OH transformer installation.																								
OVERHEAD THREE - PHASE TRANSFORMERS BANKS																								
3x10 kVA	Unit	5	2,466			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
3x15 kVA	Unit	4	2,497			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
3x25 kVA	Unit	15	3,184			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
3x37.5 kVA	Unit	3	3,745			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
3x50 kVA	Unit	9	5,010			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
3x75 kVA	Unit	-	5,290			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
3x100 kVA	Unit	3	10,079			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
3x167 kVA	Unit	-	10,640			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
3x250 kVA	Unit	1	11,200			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
3x500 kVA	Unit	1	11,200			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x10+1x5 kVA	Unit	-	2,466			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x10+1x25 kVA	Unit	-	2,706			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x10+1x37.5 kVA	Unit	1	2,892			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x10+1x50 kVA	Unit	-	3,314			1979	25	30%	70%	368.1	R0.5	32	**78%**	45.71%	8%	42.05%	48	168	267	0.6292				
2x10+1x75 kVA	Unit	-	3,408			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x15+1x25 kVA	Unit	2	2,726			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x15+1x37.5 kVA	Unit	-	2,913			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x15+1x50 kVA	Unit	1	3,335			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x25+1x15 kVA	Unit	1	2,955			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x25+1x37.5 kVA	Unit	3	3,371			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x25+1x50 kVA	Unit	1	3,793			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x25+1x75 kVA	Unit	-	3,886			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x25+1x100 kVA	Unit	-	3,979			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x37.5+1x50 kVA	Unit	-	4,166			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x50+1x25 kVA	Unit	-	4,401			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x50+1x37.5 kVA	Unit	-	4,588			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x50+1x75 kVA	Unit	2.00	5,103			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
		52																						
SMUD																								
3-10 kVA		5	$ 2,448	$ 12,200		1984										34.53%				0.8202	$12,240	**$8,014**	**$10,040**	**$6,573**
3-15 kVA		4	$ 2,494	$ 10,000		1984										34.53%				0.8202	$9,976	**$6,532**	**$8,183**	**$5,357**
3-25 kVA		18	$ 2,927	$ 52,700		1984										34.53%				0.8202	$52,686	**$34,495**	**$43,214**	**$28,293**
3-50 kVA		18	$ 4,069	$ 73,200		1984										34.53%				0.6292	$73,242	**$47,953**	**$46,085**	**$30,173**
3-75 kVA		2	5,117	$ 10,200		1984										34.53%				0.8202	$10,234	**$6,700**	**$8,394**	**$5,496**
3-100 kVA		3	5,593	$ 16,800		1984										34.53%				0.8202	$16,779	**$10,986**	**$13,763**	**$9,011**
1-750 kVA Padmount		1	$ 13,054	$ 13,100		1984										34.53%				0.8202	$13,054	**$8,547**	**$10,707**	**$7,010**
1-1500 kVA Padmount		1.00	$ 23,439	$ 23,400		1984										34.53%				0.8202	$23,439	**$15,346**	**$19,225**	**$12,587**
SMUD does not install 37.5 nor 167 kVA OH tx's		**52**		**$ 211,600**	**$ 211,600**																$211,650	$138,572	$159,611	$104,501
OVERHEAD TWO TRANSFORMERS BANKS																								
1x5 + 1x25 kVA	Unit	-	1,510			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x5 + 1x37.5 kVA	Unit	-	1,790			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x10 + 1x15 kVA	Unit	7	1,655			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x10 + 1x25 kVA	Unit	18	1,883			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x10 + 1x37.5 kVA	Unit	7	2,070			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x10 + 1x50 kVA	Unit	16	2,492			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x10 + 1x75 kVA	Unit	-	2,586			1979	25	30%	70%	368.1	R0.5	32	**78%**	45.71%	8%	42.05%	48	168	267	0.6292				
1x10 + 1x100 kVA	Unit	-	2,679			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x15 + 1x25 kVA	Unit	5	1,894			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x15 + 1x37.5 kVA	Unit	2	2,081			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x15 + 1x50 kVA	Unit	2	2,502			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x15 + 1x75 kVA	Unit	-	2,596			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x15 + 1x100 kVA	Unit	-	2,689			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x25 + 1x37.5 kVA	Unit	11	2,309			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				

SMUD Annexation Study — Estimated RCNLD and OCLD Values

Woodland — Straight Line Depreciation

SMUD
Using Beck Methdology

Description	Unit	Quantity	Per Unit Price	SMUD ESTIMATE	TOTAL SMUD	Year	Age in 2004	Depr	% Cond	FERC Acct	Survivor Curve	ASL	Age % of ASL	Unadjusted Depreciation	Net Salvage %	Adjusted Depreciation	HANDY-WHITMAN Line No.	Year Installed	7/31/04	Factor	RCN	SMUD RCNLD	SMUD OC	SMUD OCLD
1x25 + 1x50 kVA	Unit	12	2,731			1984	20	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
1x25 + 1x75 kVA	Unit	-	2,825			1984	20	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
1x25 + 1x100 kVA	Unit	1	2,918			1984	20	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
1x37.5 + 1x50 kVA	Unit	8	2,918			1984	20	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
1x50 + 1x75 kVA	Unit	1	3,433			1984	20	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
1x50 + 1x100 kVA	Unit	1	3,527			1984	20	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x5 kVA	Unit	-	1,644			1984	20	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x10 kVA	Unit	7	1,644			1984	20	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x15 kVA	Unit	4	1,665			1984	20	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x25 kVA	Unit	26	2,123			1984	20	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x37.5 kVA	Unit	4	2,496			1984	20	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x50 kVA	Unit	14	3,340			1984	20	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x75 kVA	Unit	1	3,527			1984	20	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
2x100 kVA	Unit	-	3,714			1984	20	30%	70%	368.1	R0.5	32	63%	37.53%	8%	34.53%	48	219	267	0.8202				
		147																						
SMUD																								
2x10 kVA		7	$ 2,032	$ 14,200		1,984										34.53%				0.8202	$14,224	$9,313	$11,667	$7,639
2x15 kVA		11	$ 2,017	$ 22,200		1,984										34.53%				0.8202	$22,187	$14,526	$18,198	$11,915
2x25 kVA		49	$ 2,306	$ 113,000		1,984										34.53%				0.8202	$112,994	$73,980	$92,680	$60,680
2x50 kVA		76	$ 3,422	$ 260,100		1,984										34.53%				0.8202	$260,072	$170,275	$213,317	$139,664
2x75 kVA		2	$ 3,884	$ 7,800		1,984										34.53%				0.8202	$7,768	$5,086	$6,372	$4,172
2x100 kVA		2	$ 4,262	$ 8,500		1,984										34.53%				0.8202	$8,524	$5,581	$6,992	$4,578
SMUD does not install 37.5 nor 167 kVA OH tx's		147		$ 425,800	$ 425,800																$425,769	$278,761	$349,226	$228,647
Pad Mounted Single-Phase Transformers																								
1x15 kVA	Unit	-	1,432			1984	20	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x25 kVA	Unit	1	1,432			1984	20	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x37.5 kVA	Unit	-	1,850			1984	20	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x50 kVA	Unit	174	1,850			1984	20	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x75 kVA	Unit	19	2,454			1984	20	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x100 kVA	Unit	9	2,870			1984	20	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x167 kVA	Unit	4	2,964			1984	20	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
		207																						
SMUD																								
1-50 kVA		175	$ 2,183	$ 382,000		1984										34.53%				0.4674	$382,025	$250,121	$178,555	$116,904
1-75 kVA		19	$ 2,603	$ 49,500		1984										34.53%				0.4674	$49,457	$32,381	$23,116	$15,134
1-100 kVA		13	$ 2,892	$ 37,600		1984										34.53%				0.4674	$37,596	$24,615	$17,572	$11,505
		207		$ 469,100	$ 469,100																$469,078	$307,117	$219,243	$143,544
Pad Mounted Three-Phase Transformers																								
1x45 kVA	Unit	8	2,124			1984	20	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x67.5 kVA	Unit	-	3,780			1984	20	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x75 kVA	Unit	5	3,780			1984	20	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x112.5 kVA	Unit	23	4,309			1984	20	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x150 kVA	Unit	54	7,186			1984	20	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x225 kVA	Unit	4	8,058			1984	20	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x300 kVA	Unit	35	8,930			1984	20	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x500 kVA	Unit	13	10,844			1984	20	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x750 kVA	Unit	11	15,126			1984	20	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x1000 kVA	Unit	-	16,294			1984	20	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x1500 kVA	Unit	7	24,818			1984	20	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x2000 kVA	Unit	2	30,039			1984	20	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x2500 kVA	Unit	1	30,039			1984	20	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x3000 kVA	Unit	1	30,039			1984	20	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
1x5000 kVA	Unit	1	30,039			1984	20	30%	70%	368.2	R0.5	32	63%	37.53%	8%	34.53%	49	215	460	0.4674				
		165																						
SMUD																								
1-75 kVA		13	$ 5,855	$ 76,100		1984										34.53%				0.4674	$76,115	$49,834	$35,575	$23,292
1-150 kVA		77	$ 6,870	$ 529,000		1984										34.53%				0.4674	$528,990	$346,342	$247,245	$161,877
1-300 kVA		39	$ 8,481	$ 330,800		1984										34.53%				0.4674	$330,759	$216,556	$154,594	$101,216
1-500 kVA		13	$ 11,157	$ 145,000		1984										34.53%				0.4674	$145,041	$94,962	$67,791	$44,384
1-750 kVA		11	$ 13,054	$ 143,600		1984										34.53%				0.4674	$143,594	$94,014	$67,115	$43,942
1-1000 kVA		-	$ 17,451	$ -		1984										34.53%				0.4674	$0			
1-1500 kVA		16	$ 23,439	$ 375,000		1984										34.53%				0.4674	$375,024	$245,537	$175,283	$114,762
SMUD does not stock tx's larger than 2500 kVA **parallel units are**		169		$ 1,599,500	$ 1,599,500																$1,599,523	$1,047,246	$747,603	$489,474
Subsurface Single-Phase Transformers																								
1x50 kVA	Unit	342	2,124			1994	10	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696				
1x75 kVA	Unit	17	2,541			1994	10	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696				
1x100 kVA	Unit	5	2,957			1994	10	10%	90%	368.2	R0.5	32	31%	18.88%	8%	17.37%	49	308	460	0.6696				
		364																						
SMUD																								
1-50 kVA		342	$ 2,183	$ 746,600		1994										17.37%				0.6696	$746,586	$616,907	$499,888	$413,059
1-75 kVA		17	$ 2,603	$ 44,300		1994										17.37%				0.6696	$44,251	$36,565	$29,629	$24,483
1-100 kVA		5	$ 2,892	$ 14,500		1994										17.37%				0.6696	$14,460	$11,948	$9,682	$8,000
SMUD does not install sub-surface transformers,		364		$ 805,400	$ 805,400																$805,297	$665,420	$539,199	$445,542
Cost here is for padmount transformers & loaded labor to install.																								
Subsurface Three-Phase Transformers																								

SMUD Annexation Study | **Estimated RCNLD and OCLD Values**

Woodland | **Straight Line Depreciation**

SMUD
Using Beck Methdology

Description		Unit	Quantity	Per Unit Price	SMUD ESTIMATE	TOTAL SMUD	Year	Age in 2004	Depr	% Cond	FERC Acct	Survivor Curve	ASL	Age % of ASL	Unadjusted Depreciation	Net Salvage %	Adjusted Depreciation	HANDY-WHITMAN Line No.	Year Installed	7/31/04	Factor	RCN	SMUD RCNLD	SMUD OC	SMUD OCLD
1x112.5 kVA		Unit	9	4,303			1994	10	10%	90%	368.2	R0.5	32	**31%**	18.88%	8%	17.37%	49	308	460	0.6696				
1x150 kVA		Unit	15	7,290			1994	10	10%	90%	368.2	R0.5	32	**31%**	18.88%	8%	17.37%	49	308	460	0.6696				
1x225 kVA		Unit	1	8,162			1994	10	10%	90%	368.2	R0.5	32	**31%**	18.88%	8%	17.37%	49	308	460	0.6696				
1x300 kVA		Unit	11	9,034			1994	10	10%	90%	368.2	R0.5	32	**31%**	18.88%	8%	17.37%	49	308	460	0.6696				
1x500 kVA		Unit	3	10,965			1994	10	10%	90%	368.2	R0.5	32	**31%**	18.88%	8%	17.37%	49	308	460	0.6696				
1x1000 kVA		Unit	-	15,265			1994	10	10%	90%	368.2	R0.5	32	**31%**	18.88%	8%	17.37%	49	308	460	0.6696				
1x1500 kVA		Unit	1	25,096			1994	10	10%	90%	368.2	R0.5	32	**31%**	18.88%	8%	17.37%	49	308	460	0.6696				
1x2500 kVA		Unit	2	30,318			1994	10	10%	90%	368.2	R0.5	32	**31%**	18.88%	8%	17.37%	49	308	460	0.6696				
1x3000 kVA		Unit	1	30,318			1994	10	10%	90%	368.2	R0.5	32	**31%**	18.88%	8%	17.37%	49	308	460	0.6696				
			43																						
SMUD																									
1-150 kVA			24	$ 6,870	$ 164,900		1,994										17.37%				0.6696	$164,880	**$136,241**	**$110,398**	**$91,222**
1-300 kVA			12	$ 8,481	$ 101,800		1,994										17.37%				0.6696	$101,772	**$84,095**	**$68,143**	**$56,307**
1-500 kVA			3	$ 11,157	$ 33,500		1,994										17.37%				0.6696	$33,471	**$27,657**	**$22,411**	**$18,518**
1-1000 kVA			-	$ 17,451	$ -		1,994										17.37%				0.6696	$0			
1-1500 kVA			7	$ 23,439	$ 164,100		1,994										17.37%				0.6696	$164,073	**$135,574**	**$109,858**	**$90,776**
SMUD does not stock tx's larger than 2500 kVA **parallel units are**			**46**		**$ 464,300**	**$ 464,300**																$464,196	$383,567	$310,809	$256,823
SMUD does not install sub-surface transformers,																									
Cost here is for padmount transformers & loaded labor to install.																									
OVERHEAD LOW VOLTAGE CIRCUITS																									
1C Triplex # 4/0 AWG AL Bare		mi	11.63	20,796			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
3 # 4/0 AWG AL Bare		mi	11.63	30,668			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
			23.25																						
SMUD																									
3 # 1/0 AWG AL Bare		mi	11.63	$ 19,875	$ 231,000		1984										55.58%				0.5723	$231,047	**$102,638**	**$132,234**	**$58,742**
3 # 4/0 AWG AL Bare		mi	11.63	$ 19,875	$ 231,000		1984										55.58%				0.5723	$231,047	**$102,638**	**$132,234**	**$58,742**
			23.25		**$ 462,000**	**$ 462,000**																			
Assumes pole is existing in the field																						$462,094	$205,276	$264,469	$117,485
UNDERGROUND LOW VOLTAGE CIRCUITS																									
3 # 4/0 AWG AL 600V		mi	24.77	129,403			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 350 AWG AL		mi	2.70	129,403			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 700 AWG AL		mi	0.75	129,403			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
			28.22																						
SMUD																									
3 # 4/0 AWG AL 600V		mi	24.77	$102,827	$ 2,546,800		1,994										37.98%				0.7886	$2,546,811	**$1,579,410**	**$2,008,461**	**$1,245,551**
3 # 350 AWG AL		mi	2.70	$105,933	$ 286,000		1,994										37.98%				0.7886	$286,020	**$177,376**	**$225,560**	**$139,882**
3 # 500 CU (Eq 700 AWG Al)		mi	0.75	$114,867	$ 86,200		1,994										37.98%				0.7886	$86,150	**$53,426**	**$67,939**	**$42,133**
			28.22		**$ 2,919,000**	**$ 2,919,000**																$2,918,981	$1,810,212	$2,301,961	$1,427,565
Distribution Rights of Way																									
Rights of Way			-	-			1984	20	30%	70%	370	R2	32	**63%**	50.80%	0%	50.80%	52	213	324	0.6574				
			-																						
SMUD																									
Rights of Way		Unit	45	3,500	$ 156,900		1984	20	30%	70%	370	R2	32	**63%**	50.80%	0%	50.80%	52	213	324	0.6574	$156,936	$156,936	$156,936	$156,936
			45		**$ 156,900**	**$ 156,900**																			
SERVICE DROP																									
Overhead Low Voltage single-phase Service Drop, 50 Feet																									
1C Triplex # 6 AWG AL.	176	Unit	196	294			1984	20	30%	70%	369.1	R4	43	**47%**	46.04%	-45%	66.76%	50	255	393	0.6489				
1C Triplex # 2 AWG AL.	194	Unit	215	311			1984	20	30%	70%	369.1	R4	43	**47%**	46.04%	-45%	66.76%	50	255	393	0.6489				
1C Triplex # 1/0 AWG de AL.	5,453	Unit	6,066	327			1984	20	30%	70%	369.1	R4	43	**47%**	46.04%	-45%	66.76%	50	255	393	0.6489				
1C Triplex # 4/0 AWG de AL.	-	Unit	-	327			1984	20	30%	70%	369.1	R4	43	**47%**	46.04%	-45%	66.76%	50	255	393	0.6489				
1 C Quadruplex # 1/0 AWG AL.	127	Unit	141	534			1984	20	30%	70%	369.1	R4	43	**47%**	46.04%	-45%	66.76%	50	255	393	0.6489				
1 C Quadruplex # 4/0 AWG de AL.	34	Unit	38	534			1984	20	30%	70%	369.1	R4	43	**47%**	46.04%	-45%	66.76%	50	255	393	0.6489				
2 # 1/0 AWG. (phases) y 1 # 2 AWG (neutral	6,142	Unit	6,832	309			1984	20	30%	70%	369.1	R4	43	**47%**	46.04%	-45%	66.76%	50	255	393	0.6489				
2 # 350 MCM. (phases) y 1 # 4/0 AWG (neut	12	Unit	13	364			1984	20	30%	70%	369.1	R4	43	**47%**	46.04%	-45%	66.76%	50	255	393	0.6489				
2 # 1000 MCM. (phases) y 1 # 350 MCM (ne	17	Unit	19	373			1984	20	30%	70%	369.1	R4	43	**47%**	46.04%	-45%	66.76%	50	255	393	0.6489				
	12,155		**13,521**																						
SMUD																									
ALL SVC 2-1/0 AWG 1#2 AWG			**13,521**	$ 321	**$ 4,340,100**	**4,340,100**	1984										66.76%				0.6489	$4,340,118	**$1,442,742**	**$2,816,107**	**$936,130**
																						$4,340,118	$1,442,742	$2,816,107	$936,130
Assumes pole is existing in the field.																									
Overhead Low Voltage three-phase Service Drop, 5(																									
1 C Quadruplex # 1/0 AWG AL.	-	Unit	-	534			1984	20	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
1 C Quadruplex # 4/0 AWG de AL.	-	Unit	-	534			1984	20	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
3 # 1/0 AWG (phases) y 1 # 2 AWG (neutral)	8	Unit	9	411			1984	20	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
3 # 4/0 AWG (phases) y 1 # 1/0 AWG (neutra	5	Unit	6	449			1984	20	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
3 # 350 MCM (phases) y 1 # 4/0 AWG (neutr	23	Unit	26	489			1984	20	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
3 # 1000 MCM (phases) y 1 # 350 MCM (ne	117	Unit	130	498			1984	20	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
2 circuits 3 # 1000 MCM (phases) y 1 # 350	66	Unit	73	621			1984	20	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
3 circuits 3 # 1000 MCM (phases) y 1 # 350	18	Unit	20	745			1984	20	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
5 circuits 3 # 1000 MCM (phases) y 1 # 350	8	Unit	9	993			1984	20	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
7 circuits 3 # 1000 MCM (phases) y 1 # 350	2	Unit	2	1,241			1984	20	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
9 circuits 3 # 1000 MCM (phases) y 1 # 350	6	Unit	7	1,488			1984	20	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
	253		**281**																						
SMUD																									

SMUD Annexation Study		Estimated RCNLD and OCLD Values																				SMUD			
Woodland		Straight Line Depreciation																				Using Beck Methdology			
																		HANDY-WHITMAN							
Description		Unit	Quantity	Per Unit Price	SMUD ESTIMATE	TOTAL SMUD	Year	Age in 2004	Depr	% Cond	FERC Acct	Survivor Curve	ASL	Age % of ASL	Unadjusted Depreciation	Net Salvage %	Adjusted Depreciation	Line No.	Year Installed	7/31/04	Factor	RCN	SMUD RCNLD	SMUD OC	SMUD OCLD
All OH Commercial Serices	**13**		**8**	$ 800	$ 6,600		1,984										66.76%				0.7927	$6,556	**$2,179**	**$5,197**	**$1,727**
All UG Commercial Serices	**240**		**151**	$ 750	$ 113,500		1,984										66.76%				0.7927	$113,461	**$37,717**	**$89,943**	**$29,899**
Assumes pole is existing in the field.	**253**		**159**		**120,100**	**120,100**																$120,016	$39,896	$95,140	$31,626
Underground Service Drop																									
All UG service drops	11,462	Unit	7,225	1,021			1984	20	30%	70%	370	R2	32	**63%**	50.80%	0%	50.80%	52	213	324	0.6574				
	11,462		**7,225**																						
SMUD																									
All UG service drops	11,462	Unit	7,225	1,021	$ 7,376,700		1,984										50.80%				0.6574	$7,376,652	**$3,629,313**	**$4,849,466**	**$2,385,937**
	11,462		**7,225**		**$ 7,376,700**	**$ 7,376,700**																$7,376,652	$3,629,313	$4,849,466	$2,385,937
METERS																									
Residential	23,616	Unit	20,349	131			1984	20	30%	70%	370	R2	32	**63%**	50.80%	0%	50.80%	52	213	324	0.6574				
Commercial	1,243	Unit	1,071	290			1984	20	30%	70%	370	R2	32	**63%**	50.80%	0%	50.80%	52	213	324	0.6574				
Industrial	1	Unit	1	538			1984	20	30%	70%	370	R2	32	**63%**	50.80%	0%	50.80%	52	213	324	0.6574				
	11,616		**10,009**																						
SMUD																									
Residential	23,616		20,349	$ 68	$ 1,383,700		1,984										50.80%				0.6574	$1,383,730	**$680,795**	**$909,675**	**$447,560**
Commercial	1,243		1,071	$ 144	$ 154,200		1,984										50.80%				0.6574	$154,230	**$75,881**	**$101,392**	**$49,885**
Industrial	1		1	245	$ 200		1,984										50.80%				0.6574	$245	**$121**	**$161**	**$79**
	11,616	12,408	**10,009**		**$ 1,538,100**	**$ 1,538,100**																$1,538,206	$756,797	$1,011,228	$497,524
Used Above estimate																									
RISERS																									
Three-phase Riser 12 kV 3 # 1000 MCM AL.		Unit	34	496			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Three-phase Riser 12 kV 3 # 350 MCM AL.		Unit	4	408			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Three-phase Riser 12 kV 3 # 4/0 AWG AL.		Unit	-	408			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Three-phase Riser 12 kV 3 # 1/0 AWG AL.		Unit	121	371			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Three-phase Riser 12 kV 2 # 1/0 AWG AL.		Unit	67	371			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
			226																						
SMUD																									
Three-phase Riser 12 kV 3- 1000 kcmil AL.			38	$ 937	$ 35,606		1984										55.58%				0.5723	$35,606	**$15,817**	**$20,378**	**$9,053**
Three-phase Riser 12 kV 3- # 2 AWG AL.			188	$ 704	$ 132,352		1984										55.58%				0.5723	$132,352	**$58,795**	**$75,749**	**$33,650**
Assumes pole is existing in the field.			**226**		**$ 167,958**	**$ 167,958**																$167,958	$74,612	$96,127	$42,702
SWITCHES																									
Overhead three-phase Switch		Unit	129	3,615			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Three single-phase Cutouts.		Set	59	1,594			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Two single-phase Cutouts		Set	34	1,063			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Pad Mounted Switch PMH4		Unit	7	5,534			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Pad Mounted Switch PMH 43W		Unit	9	6,824			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Pad Mounted Switch PMH6		Unit	-	8,207			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Pad Mounted Switch PMH9		Unit	3	9,796			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Subsurface 600 A 2 Ways.		Unit	11	6,824			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Subsurface 600 A 3 Ways, 2 Ways switched.		Unit	4	6,824			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Subsurface 600 A 3 Ways, 3 Ways switched.		Unit	4	6,917			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Subsurface 200 A Fused Switch.		Unit	34	6,917			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Recloser		Unit	15	9,404			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
			309																						
SMUD																									
Overhead three-phase gang operated switch			129	$ 4,338	$ 559,602		1984										55.58%				0.5723	$559,602	**$248,592**	**$320,275**	**$142,276**
Three single-phase Cutouts.		Set	59	$ 711	$ 41,949		1984										55.58%				0.5723	$41,949	**$18,635**	**$24,009**	**$10,665**
Two single-phase Cutouts		Set	34	$ 581	$ 19,754		1984										55.58%				0.5723	$19,754	**$8,775**	**$11,306**	**$5,022**
Pad Mounted Switch PMH9			72	$ 13,000	$ 936,000		1984										55.58%				0.5723	$936,000	**$415,799**	**$535,698**	**$237,973**
Recloser			15	$ 31,000	$ 465,000		1984										55.58%				0.5723	$465,000	**$206,567**	**$266,132**	**$118,224**
			309		**$ 2,022,305**	**$ 2,022,305**																$2,022,305	$898,369	$1,157,420	$514,161
SMUD does not install single-phase cutout switches																									
SMUD does not install sub-surface switches																									
Assumes pole is existing in the field.																									
CAPACITORS BANKS																									
Overhead Capacitors Bank 3 x 100 kVAR .		Unit	4	4,458			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Overhead Capacitors Bank 3 x 200 kVAR .		Unit	33	4,458			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Overhead Capacitors Bank 3 x 300 kVAR.		Unit	1	4,458			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Overhead Capacitors Bank 3 x 300 kVAR., 3 x 200 kVA		Unit	-	8,272			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Overhead Capacitors Bank 6 x 100 kVAR.		Unit	15	8,272			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Overhead Capacitors Bank 6 x 200 kVAR.		Unit	13	8,272			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Overhead Capacitors Bank 6 x 300 kVAR.		Unit	4	8,272			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Overhead Capacitors Bank 3 x 200 and 3 x 100 kVAR.		Unit	2	8,272			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Pad Mounted Capacitors Bank 3 x 300 kVAR.		Unit	-	6,071			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Pad Mounted Capacitors Bank 6 x 300 kVAR.		Unit	3	11,174			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
			75																						
SMUD																									
Overhead Capacitors Bank 3 x 200 kVAR .			52	4,338	$ 225,576		1984										55.58%				0.5723	$225,576	**$100,208**	**$129,103**	**$57,352**
Overhead Capacitors Bank 6 x 200 kVAR.			23	$ 10,600	$ 243,800		1984										55.58%				0.5723	$243,800	**$108,303**	**$139,533**	**$61,985**
			75		**$ 469,376**	**$ 469,376**																$469,376	$208,511	$268,637	$119,336
SMUD does not install padmount capacitor banks.																									
Assumes pole is existing in the field.																									
REGULATORS																									

SMUD Annexation Study — Estimated RCNLD and OCLD Values

Woodland — Straight Line Depreciation

SMUD — Using Beck Methdology

Description	Unit	Quantity	Per Unit Price	SMUD ESTIMATE	TOTAL SMUD	Year	Age in 2004	Depr	% Cond	FERC Acct	Survivor Curve	ASL	Age % of ASL	Unadjusted Depreciation	Net Salvage %	Adjusted Depreciation	HANDY-WHITMAN Line No.	HANDY-WHITMAN Year Installed	HANDY-WHITMAN 7/31/04	HANDY-WHITMAN Factor	RCN	SMUD RCNLD	SMUD OC	SMUD OCLD
4 Step Voltage Regulator	Unit	3	1,764			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
32 Step Voltage Regulator	Unit	-	2,137			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
		3																						
SMUD																								
32 step voltage regulator		3	$ 20,000	$ 60,000		1,984										55.58%				0.5723	$60,000	**$26,654**	**$34,340**	**$15,255**
SMUD does not install 4-step regulators				**$ 60,000**	**$ 60,000**																$60,000	$26,654	$34,340	$15,255
Assumes poles are existing in the field.																								
TOTAL					**$ 59,586,512**																			

SMUD Annexation Study | **Estimated RCNLD and OCLD Values** | **SMUD**

Davis (1107) | **Straight Line Depreciation** | **Using Beck Methdology**

Description	Unit	Quantity	Per Unit Price	SMUD ESTIMATE	TOTAL SMUD	Year	Age in 2004	Depr	% Cond	FERC Acct	Survivor Curve	ASL	Age % of ASL	Unadjusted Depreciation	Net Salvage %	Adjusted Depreciation	HANDY-WHITMAN Line No.	HANDY-WHITMAN Year Installed	HANDY-WHITMAN 7/31/04	HANDY-WHITMAN Factor	RCN	SMUD RCNLD	SMUD OC	SMUD OCLD
SUBSTATIONS																								
SMUD																								
SUBSTATIONS																								
						1,984															$0			
						1,984															$0			
						1,984															$0			
																					$0	$0	$0	$0
FEEDERS																								
12 kv Overhead feeder,																								
3 # 715.5 MCM AL	mi	4.29	44,338			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
3 # 397.5 MCM AL	mi	4.54	39,408			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
3 # 4/0 AWG AL	mi	-	36,588			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
3 # 2/0 AWG AL	mi	4.95	25,236			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
3 # 1/0 AWG AL	mi	-	21,462			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
3 # 2 AWG AL	mi	3.43	21,565			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
2 # 2 AWG AL	mi	0.16	14,377			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
3 # 4 AWG AL	mi	9.67	21,565			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
2 # 4 AWG AL	mi	0.07	14,377			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
3 # 6 AWG CU	mi	-	12,917			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
2 # 6 AWG CU	mi	-	8,611			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
		27.10																						
SMUD			$ / mile																					
3-795 kcmil AAC		4.29	$ 92,541	$ 396,800		1,984										55.58%				57.23%	$396,827	**$176,282**	**$227,115**	**$100,891**
3-477 kcmil AAC		4.54	$ 82,368	$ 373,500		1,984										55.58%				57.23%	$373,539	**$165,937**	**$213,786**	**$94,970**
3-# 1/0 AAAC		18.05	$ 78,848	$ 1,423,400		1,984										55.58%				57.23%	$1,423,404	**$632,319**	**$814,652**	**$361,893**
1-# 1/0 AAAC		0.23	52,592	$ 11,900		1,984										55.58%				57.23%	$11,866	**$5,271**	**$6,791**	**$3,017**
Includes poles, hardware, and loaded labor.		**27.10**		**$ 2,205,600**	**$ 2,205,600**																$2,205,635	$979,809	$1,262,345	$560,771
12 Kv Underground feeder SUBURBAN Area																								
3 # 1250 MCM AL	mi	-	263,405			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 1000 MCM AL	mi	0.28	263,405			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 350 MCM AL	mi	-	235,615			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 4/0 MCM AL	mi	-	235,615			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 1/0 MCM AL	mi	-	223,600			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
2 # 1/0 MCM AL	mi	-	196,294			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
		0.28																						
SMUD			$ / mile																					
3-1000 kcmil AL		0.28	$ 342,371	$ 95,900		1,994										37.98%				78.86%	$95,864	**$59,450**	**$75,600**	**$46,883**
3-500 kcmil AL		-	$ 302,218	$ -		1,994										37.98%				78.86%	$0			
3-#2 AL		-	$ 241,929	$ -		1,994										37.98%				78.86%	$0			
		0.28		**$ 95,900**	**$ 95,900**																$95,864	$59,450	$75,600	$46,883
12 Kv Underground feeder URBAN Area																								
3 # 1250 MCM AL	mi	-	468,419			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 1000 MCM AL	mi	0.07	468,419			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 350 MCM AL	mi	-	440,629			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 4/0 MCM AL	mi	-	440,629			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 1/0 MCM AL	mi	-	428,614			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
2 # 1/0 MCM AL	mi	-	401,308			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
		0.07																						
SMUD			$ / mile																					
3-1000 kcmil AL		0.07	$ 377,659	$ 26,400		1,994										37.98%				78.86%	$26,436	**$16,394**	**$20,848**	**$12,929**
3-500 kcmil AL		-	$ 337,218	$ -		1,994										37.98%				78.86%	$0			
3-#2 AL		-	$ 276,929	$ -		1,994										37.98%				78.86%	$0			
		0.07		**$ 26,400**	**$ 26,400**																$26,436	$16,394	$20,848	$12,929
POLES																								
40 to 45 feets pole, with all hardwares and acce	Unit	440	2,103			1984	20	30%	70%	364	L0	37	**54%**	27.29%	-35%	36.84%	44	266	448	0.5938				
		440																						
SMUD																					$0			
Costs included with OH conductor.					$ -																$0	$0	$0	$0
TRANSFORMERS																								
OVERHEAD SINGLE - PHASE TRANSFORMERS																								
5 kVA	Unit	-	822			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x10 kVA	Unit	20	822			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x15 kVA	Unit	6	832			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x25 kVA	Unit	7	1,061			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x37.5 kVA	Unit	1	1,248			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x50 kVA	Unit	-	1,670			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x75 kVA	Unit	20	1,763			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x100 kVA	Unit	-	1,857			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x167 kVA	Unit	-	1,857			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				

SMUD Annexation Study | **Estimated RCNLD and OCLD Values**

Davis (1107) | **Straight Line Depreciation**

SMUD

Using Beck Methdology

																	HANDY-WHITMAN							
Description	Unit	Quantity	Per Unit Price	SMUD ESTIMATE	TOTAL SMUD	Year	Age in 2004	Depr	% Cond	FERC Acct	Survivor Curve	ASL	Age % of ASL	Unadjusted Depreciation	Net Salvage %	Adjusted Depreciation	Line No.	Year Installed	7/31/04	Factor	RCN	SMUD RCNLD	SMUD OC	SMUD OCLD
		54																						

SMUD Annexation Study	Estimated RCNLD and OCLD Values																					SMUD		
Davis (1107)	Straight Line Depreciation																					Using Beck Methdology		
				SMUD	TOTAL												HANDY-WHITMAN					SMUD	SMUD	SMUD
Description	Unit	Quantity	Per Unit Price	ESTIMATE	SMUD	Year	Age in 2004	Depr	% Cond	FERC Acct	Survivor Curve	ASL	Age % of ASL	Unadjusted Depreciation	Net Salvage %	Adjusted Depreciation	Line No.	Year Installed	7/31/04	Factor	RCN	RCNLD	OC	OCLD
SMUD																								
10 kVA		20	822	$ 16,400		1984										34.53%				82.02%	$16,442	**$10,765**	**$13,486**	**$8,830**
15 kVA		6	832	$ 5,000		1984										34.53%				82.02%	$4,995	**$3,270**	**$4,097**	**$2,682**
25 kVA		7	1,061	$ 7,400		1984										34.53%				82.02%	$7,429	**$4,864**	**$6,094**	**$3,990**
50 kVA		1	1,670	$ 1,700		1984										34.53%				82.02%	$1,670	**$1,093**	**$1,370**	**$897**
75 kVA		20	1,763	$ 35,300		1984										34.53%				82.02%	$35,269	**$23,091**	**$28,928**	**$18,940**
100 kVA			1,856.88	$ -		1984										34.53%				82.02%	$0			
SMUD does not install 37.5 kVA tx's		**54**		**$ 65,800**	**$ 65,800**																$65,805	$43,084	$53,975	$35,338
OVERHEAD THREE - PHASE TRANSFORMERS																								
1x45 kVA	Unit	1	1,670			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x112.5 kVA	Unit	5	3,360			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x150 kVA	Unit	-	3,547			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x225 kVA	Unit	-	3,733			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
		6																						
SMUD																								
3-15 kVA		1	$ 2,494	$ 2,500		1,984										34.53%				82.02%	$2,494	**$1,633**	**$2,046**	**$1,339**
3-50 kVA		5	$ 4,069	$ 20,300		1,984										34.53%				82.02%	$20,345	**$13,320**	**$16,687**	**$10,926**
3-75 kVA		-	$ 5,117	$ -		1,984										34.53%				82.02%	$0			
		6		**$ 22,800**	**$ 22,800**																$22,839	$14,953	$18,733	$12,265
SMUD does not install overhead 3-phase transformers.																								
Used costs for 3-single phase OH transformer installation.																								
OVERHEAD THREE - PHASE TRANSFORMERS BANKS																								
3x10 kVA	Unit	6	2,466			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
3x15 kVA	Unit	2	2,497			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
3x25 kVA	Unit	6	3,184			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
3x37.5 kVA	Unit	1	3,745			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
3x50 kVA	Unit	1	5,010			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
3x75 kVA	Unit	-	5,290			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
3x100 kVA	Unit	-	10,079			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
3x167 kVA	Unit	-	10,640			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
3x250 kVA	Unit	-	11,200			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
3x500 kVA	Unit	-	11,200			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x10+1x5 kVA	Unit	-	2,466			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x10+1x25 kVA	Unit	-	2,706			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x10+1x37.5 kVA	Unit	-	2,892			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x10+1x50 kVA	Unit	-	3,314			1979	25	30%	70%	368.1	R0.5	32	**78%**	45.71%	8%	42.05%	48	168	267	0.6292				
2x10+1x75 kVA	Unit	-	3,408			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x15+1x25 kVA	Unit	-	2,726			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x15+1x37.5 kVA	Unit	-	2,913			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x15+1x50 kVA	Unit	-	3,335			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x25+1x15 kVA	Unit	-	2,955			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x25+1x37.5 kVA	Unit	-	3,371			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x25+1x50 kVA	Unit	-	3,793			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x25+1x75 kVA	Unit	-	3,886			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x25+1x100 kVA	Unit	-	3,979			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x37.5+1x50 kVA	Unit	-	4,166			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x50+1x25 kVA	Unit	-	4,401			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x50+1x37.5 kVA	Unit	-	4,588			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x50+1x75 kVA	Unit	-	5,103			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
		16																						
SMUD																								
3-10 kVA		6	$ 2,448	$ 14,700		1984										34.53%				82.02%	$14,688	**$9,617**	**$12,047**	**$7,888**
3-15 kVA		2	$ 2,494	$ 5,000		1984										34.53%				82.02%	$4,988	**$3,266**	**$4,091**	**$2,679**
3-25 kVA		6	$ 2,927	$ 17,600		1984										34.53%				82.02%	$17,562	**$11,498**	**$14,405**	**$9,431**
3-50 kVA		2	$ 4,069	$ 8,100		1984										34.53%				82.02%	$8,138	**$5,328**	**$6,675**	**$4,370**
3-75 kVA			5,117	$ -		1984										34.53%				82.02%	$0			
3-100 kVA			5,593	$ -		1984										34.53%				82.02%	$0			
1-750 kVA Padmount		-	$ 13,054	$ -		1984										34.53%				82.02%	$0			
1-1500 kVA Padmount		-	$ 23,439	$ -		1984										34.53%				82.02%	$0			
SMUD does not install 37.5 nor 167 kVA OH tx's		**16**		**$ 45,400**	**$ 45,400**																$45,376	$29,709	$37,219	$24,368
OVERHEAD TWO TRANSFORMERS BANKS																								
1x5 + 1x25 kVA	Unit	1	1,510			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x5 + 1x37.5 kVA	Unit	-	1,790			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x10 + 1x15 kVA	Unit	-	1,655			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x10 + 1x25 kVA	Unit	1	1,883			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x10 + 1x37.5 kVA	Unit	-	2,070			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x10 + 1x50 kVA	Unit	-	2,492			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x10 + 1x75 kVA	Unit	-	2,586			1979	25	30%	70%	368.1	R0.5	32	**78%**	45.71%	8%	42.05%	48	168	267	0.6292				
1x10 + 1x100 kVA	Unit	-	2,679			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x15 + 1x25 kVA	Unit	-	1,894			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x15 + 1x37.5 kVA	Unit	-	2,081			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x15 + 1x50 kVA	Unit	1	2,502			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x15 + 1x75 kVA	Unit	-	2,596			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x15 + 1x100 kVA	Unit	-	2,689			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x25 + 1x37.5 kVA	Unit	-	2,309			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x25 + 1x50 kVA	Unit	-	2,731			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x25 + 1x75 kVA	Unit	-	2,825			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				

SMUD Annexation Study	Estimated RCNLD and OCLD Values																				SMUD		
Davis (1107)	Straight Line Depreciation																				Using Beck Methdology		
																	HANDY-WHITMAN						
Description	Unit	Quantity	Per Unit Price	SMUD ESTIMATE	TOTAL SMUD	Year	Age in 2004	Depr	% Cond	FERC Acct	Survivor Curve	ASL	Age % of ASL	Unadjusted Depreciation	Net Salvage %	Adjusted Depreciation	Line No.	Year Installed	7/31/04	Factor	RCN	SMUD RCNLD	SMUD OC	SMUD OCLD
1x25 + 1x100 kVA	Unit	-	2,918			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x37.5 + 1x50 kVA	Unit	-	2,918			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				

SMUD Annexation Study — **Estimated RCNLD and OCLD Values**

Davis (1107) — **Straight Line Depreciation**

SMUD
Using Beck Methdology

Description	Unit	Quantity	Per Unit Price	SMUD ESTIMATE	TOTAL SMUD	Year	Age in 2004	Depr	% Cond	FERC Acct	Survivor Curve	ASL	Age % of ASL	Unadjusted Depreciation	Net Salvage %	Adjusted Depreciation	HANDY-WHITMAN Line No.	HANDY-WHITMAN Year Installed	HANDY-WHITMAN 7/31/04	HANDY-WHITMAN Factor	RCN	SMUD RCNLD	SMUD OC	SMUD OCLD
1x50 + 1x75 kVA	Unit	-	3,433			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
1x50 + 1x100 kVA	Unit	-	3,527			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x5 kVA	Unit	1	1,644			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x10 kVA	Unit	7	1,644			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x15 kVA	Unit	2	1,665			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x25 kVA	Unit	5	2,123			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x37.5 kVA	Unit	-	2,496			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x50 kVA	Unit	-	3,340			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x75 kVA	Unit	-	3,527			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
2x100 kVA	Unit	-	3,714			1984	20	30%	70%	368.1	R0.5	32	**63%**	37.53%	8%	34.53%	48	219	267	0.8202				
		18																						
SMUD																								
2x10 kVA		8	$ 2,032	$ 16,300		1,984										34.53%				82.02%	$16,256	**$10,643**	**$13,334**	**$8,730**
2x15 kVA		2	$ 2,017	$ 4,000		1,984										34.53%				82.02%	$4,034	**$2,641**	**$3,309**	**$2,166**
2x25 kVA		7	$ 2,306	$ 16,100		1,984										34.53%				82.02%	$16,142	**$10,569**	**$13,240**	**$8,669**
2x50 kVA		1	$ 3,422	$ 3,400		1,984										34.53%				82.02%	$3,422	**$2,240**	**$2,807**	**$1,838**
2x75 kVA			$ 3,884	$ -		1,984										34.53%				82.02%	$0			
2x100 kVA			$ 4,262	$ -		1,984										34.53%				82.02%	$0			
SMUD does not install 37.5 nor 167 kVA OH tx's		**18**		**$ 39,800**	**$ 39,800**																$39,854	$26,093	$32,689	$21,402
Pad Mounted Single-Phase Transformers																								
1x15 kVA	Unit	-	1,432			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x25 kVA	Unit	-	1,432			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x37.5 kVA	Unit	-	1,850			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x50 kVA	Unit	-	1,850			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x75 kVA	Unit	-	2,454			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x100 kVA	Unit	-	2,870			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x167 kVA	Unit	-	2,964			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
		-																						
SMUD																								
1-50 kVA		0	$ 2,183	$ -		1984										34.53%				46.74%	$0			
1-75 kVA		0	$ 2,603	$ -		1984										34.53%				46.74%	$0			
1-100 kVA		0	$ 2,892	$ -		1984										34.53%				46.74%	$0			
		0		**$ -**	**$ -**																$0	$0	$0	$0
PAD MOUNTED THREE-PHASE TRANSFORM																								
1x45 kVA	Unit	-	2,124			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x67.5 kVA	Unit	-	3,780			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x75 kVA	Unit	-	3,780			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x112.5 kVA	Unit	-	4,309			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x150 kVA	Unit	2	7,186			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x225 kVA	Unit	-	8,058			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x300 kVA	Unit	-	8,930			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x500 kVA	Unit	-	10,844			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x750 kVA	Unit	-	15,126			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x1000 kVA	Unit	-	16,294			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x1500 kVA	Unit	-	24,818			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x2000 kVA	Unit	-	30,039			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x2500 kVA	Unit	-	30,039			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x3000 kVA	Unit	-	30,039			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
1x5000 kVA	Unit	-	30,039			1984	20	30%	70%	368.2	R0.5	32	**63%**	37.53%	8%	34.53%	49	215	460	0.4674				
		2																						
SMUD																								
1-75 kVA		-	$ 5,855	$ -		1984										34.53%				46.74%	$0			
1-150 kVA		2	$ 6,870	$ 13,700		1984										34.53%				46.74%	$13,740	**$8,996**	**$6,422**	**$4,205**
1-300 kVA		-	$ 8,481	$ -		1984										34.53%				46.74%	$0			
1-500 kVA		-	$ 11,157	$ -		1984										34.53%				46.74%	$0			
1-750 kVA		-	$ 13,054	$ -		1984										34.53%				46.74%	$0			
1-1000 kVA		-	$ 17,451	$ -		1984										34.53%				46.74%	$0			
1-1500 kVA		-	$ 23,439	$ -		1984										34.53%				46.74%	$0			
SMUD does not stock tx's larger than 2500 kVA	**parallel ur**	**2**		**$ 13,700**	**$ 13,700**																$13,740	$8,996	$6,422	$4,205
Subsurface Single-Phase Transformers																								
1x50 kVA	Unit	-	2,124			1994	10	10%	90%	368.2	R0.5	32	**31%**	18.88%	8%	17.37%	49	308	460	0.6696				
1x75 kVA	Unit	-	2,541			1994	10	10%	90%	368.2	R0.5	32	**31%**	18.88%	8%	17.37%	49	308	460	0.6696				
1x100 kVA	Unit	-	2,957			1994	10	10%	90%	368.2	R0.5	32	**31%**	18.88%	8%	17.37%	49	308	460	0.6696				
		-																						
SMUD																								
1-50 kVA		0	$ 2,183	$ -		1994										17.37%				66.96%	$0			
1-75 kVA		-	$ 2,603	$ -		1994										17.37%				66.96%	$0			
1-100 kVA		-	$ 2,892	$ -		1994										17.37%				66.96%	$0			
SMUD does not install sub-surface transformers,		**-**		**$ -**	**$ -**																$0	$0	$0	$0
Cost here is for padmount transformers & loaded labor to install.																								
Subsurface Three-Phase Transformers																								
1x112.5 kVA	Unit	-	4,303			1994	10	10%	90%	368.2	R0.5	32	**31%**	18.88%	8%	17.37%	49	308	460	0.6696				
1x150 kVA	Unit	-	7,290			1994	10	10%	90%	368.2	R0.5	32	**31%**	18.88%	8%	17.37%	49	308	460	0.6696				
1x225 kVA	Unit	-	8,162			1994	10	10%	90%	368.2	R0.5	32	**31%**	18.88%	8%	17.37%	49	308	460	0.6696				
1x300 kVA	Unit	-	9,034			1994	10	10%	90%	368.2	R0.5	32	**31%**	18.88%	8%	17.37%	49	308	460	0.6696				

SMUD Annexation Study — Estimated RCNLD and OCLD Values

Davis (1107) — Straight Line Depreciation

SMUD — Using Beck Methdology

Description		Unit	Quantity	Per Unit Price	SMUD ESTIMATE	TOTAL SMUD	Year	Age in 2004	Depr	% Cond	FERC Acct	Survivor Curve	ASL	Age % of ASL	Unadjusted Depreciation	Net Salvage %	Adjusted Depreciation	HANDY-WHITMAN Line No.	Year Installed	7/31/04	Factor	RCN	SMUD RCNLD	SMUD OC	SMUD OCLD
1x500 kVA		Unit	-	10,965			1994	10	10%	90%	368.2	R0.5	32	**31%**	18.88%	8%	17.37%	49	308	460	0.6696				
1x1000 kVA		Unit	-	15,265			1994	10	10%	90%	368.2	R0.5	32	**31%**	18.88%	8%	17.37%	49	308	460	0.6696				
1x1500 kVA		Unit	-	25,096			1994	10	10%	90%	368.2	R0.5	32	**31%**	18.88%	8%	17.37%	49	308	460	0.6696				
1x2500 kVA		Unit	-	30,318			1994	10	10%	90%	368.2	R0.5	32	**31%**	18.88%	8%	17.37%	49	308	460	0.6696				
1x3000 kVA		Unit	-	30,318			1994	10	10%	90%	368.2	R0.5	32	**31%**	18.88%	8%	17.37%	49	308	460	0.6696				
			-																						
SMUD																									
1-150 kVA			-	$ 6,870	$ -		1,994										17.37%				66.96%	$0			
1-300 kVA			-	$ 8,481	$ -		1,994										17.37%				66.96%	$0			
1-500 kVA			-	$ 11,157	$ -		1,994										17.37%				66.96%	$0			
1-1000 kVA			-	$ 17,451	$ -		1,994										17.37%				66.96%	$0			
1-1500 kVA			-	$ 23,439	$ -		1,994										17.37%				66.96%	$0			
SMUD does not stock tx's larger than 2500 kVA **parallel ur**			**-**		**$ -**	**$ -**																$0	$0	$0	$0
SMUD does not install sub-surface transformers,					-	-																			
Cost here is for padmount transformers & loaded labor to install.																									
OVERHEAD LOW VOLTAGE CIRCUITS																									
1C Triplex # 4/0 AWG AL Bare		mi	0.28	20,796			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
3 # 4/0 AWG AL Bare		mi	0.28	30,668			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
			0.55																						
SMUD																									
3 # 1/0 AWG AL Bare		mi	0.28	$ 19,875	$ 5,500		1984										55.58%				57.23%	$5,466	**$2,428**	**$3,128**	**$1,390**
3 # 4/0 AWG AL Bare		mi	0.28	$ 19,875	$ 5,500		1984										55.58%				57.23%	$5,466	**$2,428**	**$3,128**	**$1,390**
			0.55		**$ 11,000**	**$ 11,000**																			
Assumes pole is existing in the field																						$10,931	$4,856	$6,256	$2,779
UNDERGROUND LOW VOLTAGE CIRCUITS																									
3 # 4/0 AWG AL 600V		mi	-	129,403			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 350 AWG AL		mi	-	129,403			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
3 # 700 AWG AL		mi	-	129,403			1994	10	10%	90%	367	S3	31	**32%**	31.92%	-19%	37.98%	47	291	369	0.7886				
			-																						
SMUD																									
3 # 4/0 AWG AL 600V		mi	-	$ 102,827	$ -		1,994										37.98%				78.86%	$0			
3 # 350 AWG AL		mi	-	$ 105,933	$ -		1,994										37.98%				78.86%	$0			
3 # 500 CU (Eq 700 AWG Al)		mi	-	$ 114,867	$ -		1,994										37.98%				78.86%	$0			
			-		**$ -**	**$ -**																$0	$0	$0	$0
Distribution Rights of Way																									
Rights of Way			-	-			1984	20	30%	70%	370	R2	32	**63%**	50.80%	0%	50.80%	52	213	324	0.6574				
			-																						
SMUD																									
Rights of Way		Unit	6	3,500	$ 19,600		1984	20	30%	70%	370	R2	32	**63%**	50.80%	0%	50.80%	52	213	324	0.6574	$19,552	**$19,552**	**$19,552**	**$19,552**
			6		**$ 19,600**	**$ 19,600**																			
SERVICE DROP																									
Overhead Low Voltage single-phase Service Drop, 50 Feet																									
1C Triplex # 6 AWG AL.	28	Unit	31	294			1984	20	30%	70%	369.1	R4	43	**47%**	46.04%	-45%	66.76%	50	255	393	0.6489				
1C Triplex # 2 AWG AL.	4	Unit	4	311			1984	20	30%	70%	369.1	R4	43	**47%**	46.04%	-45%	66.76%	50	255	393	0.6489				
1C Triplex # 1/0 AWG de AL.	129	Unit	143	327			1984	20	30%	70%	369.1	R4	43	**47%**	46.04%	-45%	66.76%	50	255	393	0.6489				
1C Triplex # 4/0 AWG de AL.	-	Unit	-	327			1984	20	30%	70%	369.1	R4	43	**47%**	46.04%	-45%	66.76%	50	255	393	0.6489				
1 C Quadruplex # 1/0 AWG AL.	-	Unit	-	534			1984	20	30%	70%	369.1	R4	43	**47%**	46.04%	-45%	66.76%	50	255	393	0.6489				
1 C Quadruplex # 4/0 AWG de AL.	-	Unit	-	534			1984	20	30%	70%	369.1	R4	43	**47%**	46.04%	-45%	66.76%	50	255	393	0.6489				
2 # 1/0 AWG. (phases) y 1 # 2 AWG (neut	-	Unit	-	309			1984	20	30%	70%	369.1	R4	43	**47%**	46.04%	-45%	66.76%	50	255	393	0.6489				
2 # 350 MCM. (phases) y 1 # 4/0 AWG (ne	10	Unit	11	364			1984	20	30%	70%	369.1	R4	43	**47%**	46.04%	-45%	66.76%	50	255	393	0.6489				
2 # 1000 MCM. (phases) y 1 # 350 MCM (	-	Unit	-	373			1984	20	30%	70%	369.1	R4	43	**47%**	46.04%	-45%	66.76%	50	255	393	0.6489				
	170		**189**																						
SMUD																									
ALL SVC 2-1/0 AWG 1#2 AWG			**189**	$ 321	**$ 60,700**	**60,700**	1984										66.76%				64.89%	$60,703	**$20,179**	**$39,388**	**$13,093**
																						$60,703	$20,179	$39,388	$13,093
Assumes pole is existing in the field.																									
Overhead Low Voltage three-phase Service D																									
1 C Quadruplex # 1/0 AWG AL.	27	Unit	30	534			1984	20	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
1 C Quadruplex # 4/0 AWG de AL.	6	Unit	7	534			1984	20	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
3 # 1/0 AWG (phases) y 1 # 2 AWG (neutr	-	Unit	-	411			1984	20	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
3 # 4/0 AWG (phases) y 1 # 1/0 AWG (neu	-	Unit	-	449			1984	20	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
3 # 350 MCM (phases) y 1 # 4/0 AWG (ne	6	Unit	7	489			1984	20	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
3 # 1000 MCM (phases) y 1 # 350 MCM (r	3	Unit	3	498			1984	20	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
2 circuits 3 # 1000 MCM (phases) y 1 # 3	-	Unit	-	621			1984	20	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
3 circuits 3 # 1000 MCM (phases) y 1 # 35	-	Unit	-	745			1984	20	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
5 circuits 3 # 1000 MCM (phases) y 1 # 35	-	Unit	-	993			1984	20	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
7 circuits 3 # 1000 MCM (phases) y 1 # 35	-	Unit	-	1,241			1984	20	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
9 circuits 3 # 1000 MCM (phases) y 1 # 35	-	Unit	-	1,488			1984	20	30%	70%	369.2	R4	43	**47%**	46.04%	-45%	66.76%	51	218	275	0.7927				
	42		**47**																						
SMUD																									
All OH Commercial Serices	**33**		**21**	$ 800	$ 16,600		1,984										66.76%				79.27%	$16,641	**$5,532**	**$13,192**	**$4,385**
All UG Commercial Serices	**9**		**6**	$ 750	$ 4,300		1,984										66.76%				79.27%	$4,255	**$1,414**	**$3,373**	**$1,121**
Assumes pole is existing in the field.	**42**		**26**		**20,900**	**20,900**																$20,896	$6,946	$16,565	$5,506

SMUD Annexation Study — **Estimated RCNLD and OCLD Values** — **SMUD**

Davis (1107) — **Straight Line Depreciation** — **Using Beck Methdology**

Description		Unit	Quantity	Per Unit Price	SMUD ESTIMATE	TOTAL SMUD	Year	Age in 2004	Depr	% Cond	FERC Acct	Survivor Curve	ASL	Age % of ASL	Unadjusted Depreciation	Net Salvage %	Adjusted Depreciation	HANDY-WHITMAN Line No.	Year Installed	7/31/04	Factor	RCN	SMUD RCNLD	SMUD OC	SMUD OCLD
Underground Service Drop																									
All UG service drops	230	Unit	145	1,021			1984	20	30%	70%	370	R2	32	**63%**	50.80%	0%	50.80%	52	213	324	0.6574				
	230		**145**																						
SMUD																									
All UG service drops	230	Unit	145	1,021	$ 148,000		1,984										50.80%				65.74%	$148,022	**$72,827**	**$97,311**	**$47,877**
	230		**145**		**$ 148,000**	**$ 148,000**																$148,022	$72,827	$97,311	$47,877
Meters																									
Residential	400	Unit	345	131			1984	20	30%	70%	370	R2	32	**63%**	50.80%	0%	50.80%	52	213	324	0.6574				
Commercial	21	Unit	18	290			1984	20	30%	70%	370	R2	32	**63%**	50.80%	0%	50.80%	52	213	324	0.6574				
Industrial	-	Unit	-	538			1984	20	30%	70%	370	R2	32	**63%**	50.80%	0%	50.80%	52	213	324	0.6574				
	421		**363**																						
SMUD																									
Residential	400		345	$ 68	$ 23,400		1,984										50.80%				65.74%	$23,437	**$11,531**	**$15,408**	**$7,581**
Commercial	21		18	$ 144	$ 2,600		1,984										50.80%				65.74%	$2,606	**$1,282**	**$1,713**	**$843**
Industrial	1		1	$ 245	$ 200		1,984										50.80%				65.74%	$245	**$121**	**$161**	**$79**
	421	212	**363**		**$ 26,200**	**$ 26,200**																$26,288	$12,934	$17,282	$8,503
Used Above estimate																									
RISERS																									
Three-phase Riser 12 kV 3 # 1000 MCM AL.		Unit	1	496			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Three-phase Riser 12 kV 3 # 350 MCM AL.		Unit	-	408			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Three-phase Riser 12 kV 3 # 4/0 AWG AL.		Unit	-	408			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Three-phase Riser 12 kV 3 # 1/0 AWG AL.		Unit	2	371			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Three-phase Riser 12 kV 2 # 1/0 AWG AL.		Unit	2	371			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
			5																						
SMUD																									
Three-phase Riser 12 kV 3- 1000 kcmil AL.			1	$ 937	$ 937		1984										55.58%				57.23%	$937	**$416**	**$536**	**$238**
Three-phase Riser 12 kV 3- # 2 AWG AL.			4	$ 704	$ 2,816		1984										55.58%				57.23%	$2,816	**$1,251**	**$1,612**	**$716**
Assumes pole is existing in the field.			**5**		**$ 3,753**	**$ 3,753**																$3,753	$1,667	$2,148	$954
SWITCHES																									
Overhead three-phase Switch		Unit	2	3,615			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Three single-phase Cutouts.		Set	1	1,594			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Two single-phase Cutouts		Set	-	1,063			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Pad Mounted Switch PMH4		Unit	-	5,534			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Pad Mounted Switch PMH 43W		Unit	-	6,824			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Pad Mounted Switch PMH6		Unit	-	8,207			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Pad Mounted Switch PMH9		Unit	-	9,796			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Subsurface 600 A 2 Ways.		Unit	-	6,824			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Subsurface 600 A 3 Ways, 2 Ways switched.		Unit	-	6,824			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Subsurface 600 A 3 Ways, 3 Ways switched.		Unit	-	6,917			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Subsurface 200 A Fused Switch.		Unit	-	6,917			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Recloser		Unit	2	9,404			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
			5																						
SMUD																									
Overhead three-phase gang operated switch			2	$ 4,338	$ 8,676		1984										55.58%				57.23%	$8,676	**$3,854**	**$4,966**	**$2,206**
Three single-phase Cutouts.		Set	1	$ 711	$ 711		1984										55.58%				57.23%	$711	**$316**	**$407**	**$181**
Two single-phase Cutouts		Set	-	$ 581	$ -		1984										55.58%				57.23%	$0			
Pad Mounted Switch PMH9			-	$ 13,000	$ -		1984										55.58%				57.23%	$0			
Recloser			2	$ 31,000	$ 62,000		1984										55.58%				57.23%	$62,000	**$27,542**	**$35,484**	**$15,763**
			5		**$ 71,387**	**$ 71,387**																$71,387	$31,712	$40,857	$18,150
SMUD does not install single-phase cutout switches																									
SMUD does not install sub-surface switches																									
Assumes pole is existing in the field.																									
CAPACITORS BANKS.																									
Overhead Capacitors Bank 3 x 100 kVAR .		Unit	1	4,458			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Overhead Capacitors Bank 3 x 200 kVAR .		Unit	1	4,458			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Overhead Capacitors Bank 3 x 300 kVAR.		Unit	1	4,458			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Overhead Capacitors Bank 3 x 300 kVAR., 3 x 2		Unit	-	8,272			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Overhead Capacitors Bank 6 x 100 kVAR.		Unit	-	8,272			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Overhead Capacitors Bank 6 x 200 kVAR.		Unit	1	8,272			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Overhead Capacitors Bank 6 x 300 kVAR.		Unit	-	8,272			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Overhead Capacitors Bank 3 x 200 and 3 x 100		Unit	-	8,272			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Pad Mounted Capacitors Bank 3 x 300 kVAR.		Unit	-	6,071			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
Pad Mounted Capacitors Bank 6 x 300 kVAR.		Unit	-	11,174			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
			4																						
SMUD																									
Overhead Capacitors Bank 3 x 200 kVAR .			2	4,566	$ 9,132		1984										55.58%				57.23%	$0			
Overhead Capacitors Bank 6 x 200 kVAR.			2	$ 10,600	$ 21,200		1984										55.58%					$0			
			4		**$ 30,332**	**$ 30,332**																$0	$0	$0	$0
SMUD does not install padmount capacitor banks.																									
Assumes pole is existing in the field.																									
REGULATORS																									
4 Step Voltage Regulator		Unit	-	1,764			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				
32 Step Voltage Regulator		Unit	-	2,137			1984	20	30%	70%	365	R1	37	**54%**	37.30%	-49%	55.58%	45	273	477	0.5723				

SMUD Annexation Study — Estimated RCNLD and OCLD Values

Davis (1107) — Straight Line Depreciation

SMUD — Using Beck Methdology

Description	Unit	Quantity	Per Unit Price	SMUD ESTIMATE	TOTAL SMUD	Year	Age in 2004	Depr	% Cond	FERC Acct	Survivor Curve	ASL	Age % of ASL	Unadjusted Depreciation	Net Salvage %	Adjusted Depreciation	HANDY-WHITMAN Line No.	HANDY-WHITMAN Year Installed	HANDY-WHITMAN 7/31/04	HANDY-WHITMAN Factor	RCN	SMUD RCNLD	SMUD OC	SMUD OCLD
SMUD																								
32 step voltage regulator		-	$ 20,000	$ -		1,984										55.58%				57.23%	$0			
SMUD does not install 4-step regulators				$ -	$ -																$0	$0	$0	$0
Assumes poles are existing in the field.																								
					$ 2,907,272																			

SMUD Annexation Study — **Estimated RCNLD and OCLD Values**

Total Proposed Area — **Straight Line Depreciation**

Description		Unit	Quantity	Per Unit Price	SMUD ESTIMATE	TOTAL SMUD	Year %/yr	2004 %/yr	Depr Age	% Cond	FERC Acct	Survivor Curve	ASL	Age % of ASL	Unadjusted Depreciation	Net Salvage %	Adjusted Depreciation	HANDY-WHITMAN Line No.	Year Installed	7/31/04	Factor
SUBSTATIONS																					
Woodland		MVA	135.00	56,646			1984	20	30%	70%	362	L0	43	47	24.63%	0%	24.63%	43	244	444	0.5495
Tyco Plastics		MVA	10.50	79,672			1989	15	23%	78%	362	L0	43	35	19.78%	0%	19.78%	43	299	444	0.6734
			145.50																		
SMUD					0																
SUBSTATIONS					0																
					4,886,013																
Woodland		MVA	135.00		11,638,464																
Tyco Plastics		MVA	10.50		1,217,666																
			145.50		**17,742,143**	**17,742,143**															
FEEDERS																					
12 kv Overhead feeder																					
3 # 715.5 MCM AL		mi	**39**	44,338			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
3 # 397.5 MCM AL		mi	**47**	39,408			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
3 # 4/0 AWG AL		mi	**33**	36,588			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
3 # 2/0 AWG AL		mi	**22**	25,236			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
3 # 1/0 AWG AL		mi	**16**	21,462			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
3 # 2 AWG AL		mi	**101**	21,565			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
2 # 2 AWG AL		mi	**24**	14,377			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
3 # 4 AWG AL		mi	**77**	21,565			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
2 # 4 AWG AL		mi	**23**	14,377			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
3 # 6 AWG CU		mi	**16**	12,917			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
2 # 6 AWG CU		mi	**18**	8,611			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
			416.43																		
SMUD				$ / mile																	
3-795 kcmil AAC			**39**	$ 92,541	$ 3,627,400																
3-477 kcmil AAC			**80**	$ 82,368	$ 6,596,400																
3-# 1/0 AAAC			**232**	$ 78,848	$ 18,309,500																
1-# 1/0 AAAC			**65**	52,592	$ 3,415,100																
Includes poles, hardware, and loaded labor.			**416.43**		**$ 31,948,400**	**$ 31,948,400**															
12 Kv Underground feeder SUBURBAN Area																					
3 # 1250 MCM AL	0.046875	mi	**0**	263,405			1994	10	10%	90%	367	S3	31	32	31.92%	-19%	37.98%	47	291	369	0.7886
3 # 1000 MCM AL	45.5925	mi	**34**	263,405			1994	10	10%	90%	367	S3	31	32	31.92%	-19%	37.98%	47	291	369	0.7886
3 # 350 MCM AL	14.13219	mi	**11**	235,615			1994	10	10%	90%	367	S3	31	32	31.92%	-19%	37.98%	47	291	369	0.7886
3 # 4/0 MCM AL	1.570625	mi	**1**	235,615			1994	10	10%	90%	367	S3	31	32	31.92%	-19%	37.98%	47	291	369	0.7886
3 # 1/0 MCM AL	84.90091	mi	**66**	223,600			1994	10	10%	90%	367	S3	31	32	31.92%	-19%	37.98%	47	291	369	0.7886
2 # 1/0 MCM AL	112.7368	mi	**88**	196,294			1994	10	10%	90%	367	S3	31	32	31.92%	-19%	37.98%	47	291	369	0.7886
	258.9799		**200.03**																		
SMUD				$ / mile																	
3-1000 kcmil AL			34.11	$342,371	$ 11,678,200																
3-500 kcmil AL			11.22	$302,218	$ 3,390,800																
3-#2 AL			154.70	$241,929	$ 37,426,400																
			200.03		**$ 52,495,400**	**$ 52,495,400**															
12 Kv Underground feeder URBAN Area																					
3 # 1250 MCM AL	0.046875	mi	**0**	468,419			1994	10	10%	90%	367	S3	31	32	31.92%	-19%	37.98%	47	291	369	0.7886
3 # 1000 MCM AL	45.5925	mi	**12**	468,419			1994	10	10%	90%	367	S3	31	32	31.92%	-19%	37.98%	47	291	369	0.7886
3 # 350 MCM AL	14.13219	mi	**3**	440,629			1994	10	10%	90%	367	S3	31	32	31.92%	-19%	37.98%	47	291	369	0.7886
3 # 4/0 MCM AL	1.570625	mi	**0**	440,629			1994	10	10%	90%	367	S3	31	32	31.92%	-19%	37.98%	47	291	369	0.7886
3 # 1/0 MCM AL	84.90091	mi	**19**	428,614			1994	10	10%	90%	367	S3	31	32	31.92%	-19%	37.98%	47	291	369	0.7886
2 # 1/0 MCM AL	112.7368	mi	**25**	401,308			1994	10	10%	90%	367	S3	31	32	31.92%	-19%	37.98%	47	291	369	0.7886
	258.9799		**58.63**																		
			258.66																		
SMUD				$ / mile																	
3-1000 kcmil AL			11.53	$377,659	$ 4,354,400																
3-500 kcmil AL			2.88	$337,218	$ 971,200																
3-#2 AL			44.22	$276,929	$ 12,246,900																
			58.63		**$ 17,572,500**	**$ 17,572,500**															
POLES																					
40 to 45 feets pole, with all hardwares and accessories		Unit	**10,560**	2,103			1984	20	30%	70%	364	L0	37	54	27.29%	-35%	36.84%	44	266	448	0.5938
			10,560	2103																	
SMUD																					
Costs included with OH conductor.						**$ -**															

TRANSFORMERS																				
OVERHEAD SINGLE - PHASE TRANSFORMERS																				
5 kVA	Unit	**37**	822			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
1x10 kVA	Unit	**264**	822			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
1x15 kVA	Unit	**304**	832			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
1x25 kVA	Unit	**853**	1,061			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
1x37.5 kVA	Unit	**292**	1,248			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
1x50 kVA	Unit	**729**	1,670			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
1x75 kVA	Unit	**165**	1,763			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
1x100 kVA	Unit	**53**	1,857			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
1x167 kVA	Unit	**1**	1,857			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
		2698																		
SMUD																				
10 kVA		301	822	$ 247,500																
15 kVA		304	832	$ 253,000																
25 kVA		853	1,061	$ 905,300																
50 kVA		1021	1,670	$ 1,705,100																
75 kVA		165	1,763	$ 290,900																
100 kVA		54.00	1,856.88	$ 100,300																
SMUD does not install 37.5 kVA tx's		**2698**		**$ 3,502,100**	**$ 3,502,100**															
Includes $2500 loaded labor per tx installation.																				
OVERHEAD THREE - PHASE TRANSFORMERS																				
1x45 kVA	Unit	**22**	1,670			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
1x112.5 kVA	Unit	**43**	3,360			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
1x150 kVA	Unit	**31**	3,547			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
1x225 kVA	Unit	**7**	3,733			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
		103																		
SMUD																				
3-15 kVA		22	$ 2,494	$ 55,000																
3-50 kVA		74	$ 4,069	$ 301,100																
3-75 kVA		7.00	$ 5,117	$ 35,900																
		103		**$ 392,000**	**$ 392,000**															
SMUD does not install overhead 3-phase transformers.																				
Used costs for 3-single phase OH transformer installation.																				
OVERHEAD THREE - PHASE TRANSFORMERS BANKS																				
3x10 kVA	Unit	**28**	2,466			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
3x15 kVA	Unit	**25**	2,497			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
3x25 kVA	Unit	**86**	3,184			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
3x37.5 kVA	Unit	**10**	3,745			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
3x50 kVA	Unit	**26**	5,010			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
3x75 kVA	Unit	**6**	5,290			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
3x100 kVA	Unit	**3**	10,079			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
3x167 kVA	Unit	**1**	10,640			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
3x250 kVA	Unit	**1**	11,200			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
3x500 kVA	Unit	**1**	11,200			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
2x10+1x5 kVA	Unit	**1**	2,466			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
2x10+1x25 kVA	Unit	**4**	2,706			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
2x10+1x37.5 kVA	Unit	**1**	2,892			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
2x10+1x50 kVA	Unit	**1**	3,314			1979	25	30%	70%	368.1	R0.5	32	78	45.71%	8%	42.05%	48	168	267	0.6292
2x10+1x75 kVA	Unit	**2**	3,408			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
2x15+1x25 kVA	Unit	**2**	2,726			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
2x15+1x37.5 kVA	Unit	**1**	2,913			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
2x15+1x50 kVA	Unit	**2**	3,335			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
2x25+1x15 kVA	Unit	**1**	2,955			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
2x25+1x37.5 kVA	Unit	**3**	3,371			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
2x25+1x50 kVA	Unit	**4**	3,793			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
2x25+1x75 kVA	Unit	**2**	3,886			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
2x25+1x100 kVA	Unit	**1**	3,979			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
2x37.5+1x50 kVA	Unit	**2**	4,166			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
2x50+1x25 kVA	Unit	**1**	4,401			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
2x50+1x37.5 kVA	Unit	**1**	4,588			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
2x50+1x75 kVA	Unit	**2**	5,103			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
		218																		
SMUD																				
3-10 kVA		29	$ 2,448	$ 70,900																
3-15 kVA		25	$ 2,494	$ 62,400																
3-25 kVA		93	$ 2,927	$ 272,200																
3-50 kVA		52	$ 4,069	$ 211,600																
3-75 kVA		12	5,117	$ 61,300																
3-100 kVA		5	5,593	$ 28,000																
1-750 kVA Padmount		1	$ 13,054	$ 13,100																
1-1500 kVA Padmount		1.00	$ 23,439	$ 23,400																

SMUD does not install 37.5 nor 167 kVA OH tx's		**218**		**$ 742,900**	**$ 742,900**															
OVERHEAD TWO TRANSFORMERS BANKS																				
1x5 + 1x25 kVA	Unit	-	1,510			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
1x5 + 1x37.5 kVA	Unit	**2**	1,790			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
1x10 + 1x15 kVA	Unit	**19**	1,655			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
1x10 + 1x25 kVA	Unit	**50**	1,883			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
1x10 + 1x37.5 kVA	Unit	**15**	2,070			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
1x10 + 1x50 kVA	Unit	**22**	2,492			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
1x10 + 1x75 kVA	Unit	**4**	2,586			1979	25	30%	70%	368.1	R0.5	32	78	45.71%	8%	42.05%	48	168	267	0.6292
1x10 + 1x100 kVA	Unit	**1**	2,679			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
1x15 + 1x25 kVA	Unit	**20**	1,894			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
1x15 + 1x37.5 kVA	Unit	**6**	2,081			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
1x15 + 1x50 kVA	Unit	**11**	2,502			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
1x15 + 1x75 kVA	Unit	**3**	2,596			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
1x15 + 1x100 kVA	Unit	**2**	2,689			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
1x25 + 1x37.5 kVA	Unit	**19**	2,309			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
1x25 + 1x50 kVA	Unit	**33**	2,731			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
1x25 + 1x75 kVA	Unit	**4**	2,825			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
1x25 + 1x100 kVA	Unit	**1**	2,918			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
1x37.5 + 1x50 kVA	Unit	**13**	2,918			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
1x50 + 1x75 kVA	Unit	**3**	3,433			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
1x50 + 1x100 kVA	Unit	**1**	3,527			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
2x5 kVA	Unit	**2**	1,644			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
2x10 kVA	Unit	**46**	1,644			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
2x15 kVA	Unit	**34**	1,665			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
2x25 kVA	Unit	**76**	2,123			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
2x37.5 kVA	Unit	**4**	2,496			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
2x50 kVA	Unit	**25**	3,340			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
2x75 kVA	Unit	**3**	3,527			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
2x100 kVA	Unit	**1**	3,714			1984	20	30%	70%	368.1	R0.5	32	63	37.53%	8%	34.53%	48	219	267	0.8202
		420																		
SMUD																				
2x10 kVA		48	$ 2,032	$ 97,500																
2x15 kVA		53	$ 2,017	$ 106,900																
2x25 kVA		146	$ 2,306	$ 336,700																
2x50 kVA		150	$ 3,422	$ 513,400																
2x75 kVA		17	$ 3,884	$ 66,100																
2x100 kVA		6	$ 4,262	$ 25,500																
SMUD does not install 37.5 nor 167 kVA OH tx's		**420**		**$ 1,146,100**	**$ 1,146,100**															
Pad Mounted Single-Phase Transformers																				
1x15 kVA	Unit	**1**	1,432			1984	20	30%	70%	368.2	R0.5	32	63	37.53%	8%	34.53%	49	215	460	0.4674
1x25 kVA	Unit	**1**	1,432			1984	20	30%	70%	368.2	R0.5	32	63	37.53%	8%	34.53%	49	215	460	0.4674
1x37.5 kVA	Unit	**4**	1,850			1984	20	30%	70%	368.2	R0.5	32	63	37.53%	8%	34.53%	49	215	460	0.4674
1x50 kVA	Unit	**362**	1,850			1984	20	30%	70%	368.2	R0.5	32	63	37.53%	8%	34.53%	49	215	460	0.4674
1x75 kVA	Unit	**370**	2,454			1984	20	30%	70%	368.2	R0.5	32	63	37.53%	8%	34.53%	49	215	460	0.4674
1x100 kVA	Unit	**182**	2,870			1984	20	30%	70%	368.2	R0.5	32	63	37.53%	8%	34.53%	49	215	460	0.4674
1x167 kVA	Unit	**6**	2,964			1984	20	30%	70%	368.2	R0.5	32	63	37.53%	8%	34.53%	49	215	460	0.4674
		926																		
SMUD																				
1-50 kVA		368	$ 2,183	$ 803,300																
1-75 kVA		370	$ 2,603	$ 963,100																
1-100 kVA		188	$ 2,892	$ 543,700																
		926		**$ 2,310,100**	**$ 2,310,100**															
Pad Mounted Three-Phase Transformers																				
1x45 kVA	Unit	**14**	2,124			1984	20	30%	70%	368.2	R0.5	32	63	37.53%	8%	34.53%	49	215	460	0.4674
1x67.5 kVA	Unit	-	3,780			1984	20	30%	70%	368.2	R0.5	32	63	37.53%	8%	34.53%	49	215	460	0.4674
1x75 kVA	Unit	**100**	3,780			1984	20	30%	70%	368.2	R0.5	32	63	37.53%	8%	34.53%	49	215	460	0.4674
1x112.5 kVA	Unit	**23**	4,309			1984	20	30%	70%	368.2	R0.5	32	63	37.53%	8%	34.53%	49	215	460	0.4674
1x150 kVA	Unit	**229**	7,186			1984	20	30%	70%	368.2	R0.5	32	63	37.53%	8%	34.53%	49	215	460	0.4674
1x225 kVA	Unit	**6**	8,058			1984	20	30%	70%	368.2	R0.5	32	63	37.53%	8%	34.53%	49	215	460	0.4674
1x300 kVA	Unit	**159**	8,930			1984	20	30%	70%	368.2	R0.5	32	63	37.53%	8%	34.53%	49	215	460	0.4674
1x500 kVA	Unit	**44**	10,844			1984	20	30%	70%	368.2	R0.5	32	63	37.53%	8%	34.53%	49	215	460	0.4674
1x750 kVA	Unit	**28**	15,126			1984	20	30%	70%	368.2	R0.5	32	63	37.53%	8%	34.53%	49	215	460	0.4674
1x1000 kVA	Unit	**34**	16,294			1984	20	30%	70%	368.2	R0.5	32	63	37.53%	8%	34.53%	49	215	460	0.4674
1x1500 kVA	Unit	**28**	24,818			1984	20	30%	70%	368.2	R0.5	32	63	37.53%	8%	34.53%	49	215	460	0.4674
1x2000 kVA	Unit	**3**	30,039			1984	20	30%	70%	368.2	R0.5	32	63	37.53%	8%	34.53%	49	215	460	0.4674
1x2500 kVA	Unit	**1**	30,039			1984	20	30%	70%	368.2	R0.5	32	63	37.53%	8%	34.53%	49	215	460	0.4674
1x3000 kVA	Unit	**1**	30,039			1984	20	30%	70%	368.2	R0.5	32	63	37.53%	8%	34.53%	49	215	460	0.4674
1x5000 kVA	Unit	**1**	30,039			1984	20	30%	70%	368.2	R0.5	32	63	37.53%	8%	34.53%	49	215	460	0.4674
		671																		

SMUD																					
1-75 kVA			114	$ 5,855	$ 667,500																
1-150 kVA			252	$ 6,870	$ 1,731,300																
1-300 kVA			165	$ 8,481	$ 1,399,400																
1-500 kVA			44	$ 11,157	$ 490,900																
1-750 kVA			28	$ 13,054	$ 365,500																
1-1000 kVA			34	$ 17,451	$ 593,400																
1-1500 kVA			38	$ 23,439	$ 890,700																
SMUD does not stock tx's larger than 2500 kVA, **parallel units a**			**675**		**$ 6,138,700**	**$ 6,138,700**															
Subsurface Single-Phase Transformers																					
1x50 kVA		Unit	**496**	2,124			1994	10	10%	90%	368.2	R0.5	32	31	18.88%	8%	17.37%	49	308	460	0.6696
1x75 kVA		Unit	**23**	2,541			1994	10	10%	90%	368.2	R0.5	32	31	18.88%	8%	17.37%	49	308	460	0.6696
1x100 kVA		Unit	**362**	2,957			1994	10	10%	90%	368.2	R0.5	32	31	18.88%	8%	17.37%	49	308	460	0.6696
			881																		
SMUD																					
1-50 kVA			496	$ 2,183	$ 1,144,100																
1-75 kVA			20	$ 2,603	$ 52,100																
1-100 kVA			365	$ 2,892	$ 1,055,600																
SMUD does not install sub-surface transformers,			**881**		**$ 2,251,800**	**$ 2,251,800**															
Cost here is for padmount transformers & loaded labor to install.																					
Subsurface Three-Phase Transformers																					
1x112.5 kVA		Unit	**9**	4,303			1994	10	10%	90%	368.2	R0.5	32	31	18.88%	8%	17.37%	49	308	460	0.6696
1x150 kVA		Unit	**26**	7,290			1994	10	10%	90%	368.2	R0.5	32	31	18.88%	8%	17.37%	49	308	460	0.6696
1x225 kVA		Unit	**1**	8,162			1994	10	10%	90%	368.2	R0.5	32	31	18.88%	8%	17.37%	49	308	460	0.6696
1x300 kVA		Unit	**23**	9,034			1994	10	10%	90%	368.2	R0.5	32	31	18.88%	8%	17.37%	49	308	460	0.6696
1x500 kVA		Unit	**21**	10,965			1994	10	10%	90%	368.2	R0.5	32	31	18.88%	8%	17.37%	49	308	460	0.6696
1x1000 kVA		Unit	**1**	15,265			1994	10	10%	90%	368.2	R0.5	32	31	18.88%	8%	17.37%	49	308	460	0.6696
1x1500 kVA		Unit	**1**	25,096			1994	10	10%	90%	368.2	R0.5	32	31	18.88%	8%	17.37%	49	308	460	0.6696
1x2500 kVA		Unit	**2**	30,318			1994	10	10%	90%	368.2	R0.5	32	31	18.88%	8%	17.37%	49	308	460	0.6696
1x3000 kVA		Unit	**1**	30,318			1994	10	10%	90%	368.2	R0.5	32	31	18.88%	8%	17.37%	49	308	460	0.6696
			85																		
SMUD																					
1-150 kVA			35	$ 6,870	$ 240,500																
1-300 kVA			24	$ 8,481	$ 203,600																
1-500 kVA			21	$ 11,157	$ 234,300																
1-1000 kVA			1	$ 17,451	$ 17,500																
1-1500 kVA			7	$ 23,439	$ 164,100																
SMUD does not stock tx's larger than 2500 kVA, **parallel units a**			**88**		**$ 860,000**	**$ 860,000**															
SMUD does not install sub-surface transformers,																					
Cost here is for padmount transformers & loaded labor to install.																					
OVERHEAD LOW VOLTAGE CIRCUITS																					
1C Triplex # 4/0 AWG AL Bare	27.5875	mi	**28**	20,796			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
3 # 4/0 AWG AL Bare	27.5875	mi	**28**	30,668			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
	55.175		**55.18**	25343.38																	
SMUD																					
3 # 1/0 AWG AL Bare		mi	27.59	$ 19,875	$ 548,200																
3 # 4/0 AWG AL Bare		mi	27.59	$ 19,875	$ 548,200																
Assumes pole is existing in the field			**55.18**		**$ 1,096,400**	**$ 1,096,400**															
UNDERGROUND LOW VOLTAGE CIRCUITS																					
3 # 4/0 AWG AL 600V	41.184	mi	**41**	129,403			1994	10	10%	90%	367	S3	31	32	31.92%	-19%	37.98%	47	291	369	0.7886
3 # 350 AWG AL	29.25	mi	**29**	129,403			1994	10	10%	90%	367	S3	31	32	31.92%	-19%	37.98%	47	291	369	0.7886
3 # 700 AWG AL	54.75	mi	**55**	129,403			1994	10	10%	90%	367	S3	31	32	31.92%	-19%	37.98%	47	291	369	0.7886
	125.184		**125.18**																		
SMUD																					
3 # 4/0 AWG AL 600V		mi	41.18	$102,827	$ 4,234,800																
3 # 350 AWG AL		mi	29.25	$105,933	$ 3,098,500																
3 # 500 CU (Eq 700 AWG Al)		mi	54.75	$114,867	$ 6,289,000																
			125.18		**$ 13,622,300**	**$ 13,622,300**															
Distribution Rights of Way																					
Rights of Way			**-**	3,500			1984	20	30%	70%	370	R2	32	**63%**	50.80%	0%	50.80%	52	213	324	0.6574
			-																		
SMUD																					
Rights of Way		Unit	**159**	3,500	$ 557,700		1984	20	30%	70%	370	R2	32	**63%**	50.80%	0%	50.80%	52	213	324	0.6574
			159		**$ 557,700**	**$ 557,700**															
SERVICE DROP																					
Overhead Low Voltage single-phase Service Drop, 50 Feet																					
1C Triplex # 6 AWG AL.	742	Unit	**825**	294			1984	20	30%	70%	369.1	R4	43	47	46.04%	-45%	66.76%	50	255	393	0.6489

1C Triplex # 2 AWG AL.	509.5	Unit	**567**	311			1984	20	30%	70%	369.1	R4	43	47	46.04%	-45%	66.76%	50	255	393	0.6489
1C Triplex # 1/0 AWG de AL.	13406.5	Unit	**14,913**	327			1984	20	30%	70%	369.1	R4	43	47	46.04%	-45%	66.76%	50	255	393	0.6489
1C Triplex # 4/0 AWG de AL.	15	Unit	**17**	327			1984	20	30%	70%	369.1	R4	43	47	46.04%	-45%	66.76%	50	255	393	0.6489
1 C Quadruplex # 1/0 AWG AL.	452	Unit	**503**	534			1984	20	30%	70%	369.1	R4	43	47	46.04%	-45%	66.76%	50	255	393	0.6489
1 C Quadruplex # 4/0 AWG de AL.	148	Unit	**165**	534			1984	20	30%	70%	369.1	R4	43	47	46.04%	-45%	66.76%	50	255	393	0.6489
2 # 1/0 AWG. (phases) y 1 # 2 AWG (neutr	24084	Unit	**26,791**	309			1984	20	30%	70%	369.1	R4	43	47	46.04%	-45%	66.76%	50	255	393	0.6489
2 # 350 MCM. (phases) y 1 # 4/0 AWG (ne	89.5	Unit	**100**	364			1984	20	30%	70%	369.1	R4	43	47	46.04%	-45%	66.76%	50	255	393	0.6489
2 # 1000 MCM. (phases) y 1 # 350 MCM (r	146	Unit	**162**	373			1984	20	30%	70%	369.1	R4	43	47	46.04%	-45%	66.76%	50	255	393	0.6489
	39592.5		**44,043**																		
SMUD																					
ALL SVC 2-1/0 AWG 1#2 AWG			**44,043**	$ 321	**$ 14,137,600**	**14,137,600**															
Assumes pole is existing in the field.																					
Overhead Low Voltage three-phase Service Drop, 5																					
1 C Quadruplex # 1/0 AWG AL.		Unit	**(30)**	534			1984	20	30%	70%	369.2	R4	43	47	46.04%	-45%	66.76%	51	218	275	0.7927
1 C Quadruplex # 4/0 AWG de AL.		Unit	**(7)**	534			1984	20	30%	70%	369.2	R4	43	47	46.04%	-45%	66.76%	51	218	275	0.7927
3 # 1/0 AWG (phases) y 1 # 2 AWG (neutral) AL 600 V		Unit	**19**	411			1984	20	30%	70%	369.2	R4	43	47	46.04%	-45%	66.76%	51	218	275	0.7927
3 # 4/0 AWG (phases) y 1 # 1/0 AWG (neutral) AL 600		Unit	**69**	449			1984	20	30%	70%	369.2	R4	43	47	46.04%	-45%	66.76%	51	218	275	0.7927
3 # 350 MCM (phases) y 1 # 4/0 AWG (neutral) AL 60(		Unit	**72**	489			1984	20	30%	70%	369.2	R4	43	47	46.04%	-45%	66.76%	51	218	275	0.7927
3 # 1000 MCM (phases) y 1 # 350 MCM (neutral) AL 6		Unit	**347**	498			1984	20	30%	70%	369.2	R4	43	47	46.04%	-45%	66.76%	51	218	275	0.7927
2 circuits 3 # 1000 MCM (phases) y 1 # 350 MCM (ne		Unit	**216**	621			1984	20	30%	70%	369.2	R4	43	47	46.04%	-45%	66.76%	51	218	275	0.7927
3 circuits 3 # 1000 MCM (phases) y 1 # 350 MCM (neu		Unit	**97**	745			1984	20	30%	70%	369.2	R4	43	47	46.04%	-45%	66.76%	51	218	275	0.7927
5 circuits 3 # 1000 MCM (phases) y 1 # 350 MCM (neu		Unit	**24**	993			1984	20	30%	70%	369.2	R4	43	47	46.04%	-45%	66.76%	51	218	275	0.7927
7 circuits 3 # 1000 MCM (phases) y 1 # 350 MCM (neu		Unit	**3**	1,241			1984	20	30%	70%	369.2	R4	43	47	46.04%	-45%	66.76%	51	218	275	0.7927
9 circuits 3 # 1000 MCM (phases) y 1 # 350 MCM (neu		Unit	**7**	1,488			1984	20	30%	70%	369.2	R4	43	47	46.04%	-45%	66.76%	51	218	275	0.7927
			818																		
SMUD																					
All OH Commercial Serices			**53**	$ 800	$ 42,471																
All UG Commercial Serices			**499**	$ 750	$ 374,415																
Assumes pole is existing in the field.			**552**		**416,887**	**416,887**															
Underground Service Drop																					
All UG service drops		Unit	**23,684**	1,021			1984	20	30%	70%	370	R2	32	**63%**	50.80%	0%	50.80%	52	213	324	0.6574
			23,684																		
SMUD																					
All UG service drops		Unit	23,684	1,021	$ 24,181,000		1,984										50.80%				0.6574
			23,684		**$ 24,181,000**	**$ 24,181,000**															
METERS																					
Residential		Unit	**66,498**	131			1984	20	30%	70%	370	R2	32	63	50.80%	0%	50.80%	52	213	324	0.6574
Commercial		Unit	**3,499**	290			1984	20	30%	70%	370	R2	32	63	50.80%	0%	50.80%	52	213	324	0.6574
Industrial		Unit	**3**	538			1984	20	30%	70%	370	R2	32	63	50.80%	0%	50.80%	52	213	324	0.6574
			70,000																		
SMUD																					
Residential			66,498	$ 68	$ 4,521,800																
Commercial			3,499	$ 144	$ 503,800																
Industrial			3	245	$ 600																
			70,000		**$ 5,026,200**	**$ 5,026,200**															
Used Above estimate																					
RISERS																					
Three-phase Riser 12 kV 3 # 1000 MCM AL.		Unit	**116**	496			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
Three-phase Riser 12 kV 3 # 350 MCM AL.		Unit	**16**	408			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
Three-phase Riser 12 kV 3 # 4/0 AWG AL.		Unit	**3**	408			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
Three-phase Riser 12 kV 3 # 1/0 AWG AL.		Unit	**378**	371			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
Three-phase Riser 12 kV 2 # 1/0 AWG AL.		Unit	**155**	371			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
			668																		
SMUD																					
Three-phase Riser 12 kV 3- 1000 kcmil AL.			135	$ 937	$ 126,495																
Three-phase Riser 12 kV 3- # 2 AWG AL.			533	$ 704	$ 375,232																
Assumes pole is existing in the field.			**668**		**$ 501,727**	**$ 501,727**															
SWITCHES																					
Overhead three-phase Switch		Unit	**379**	3,615			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
Three single-phase Cutouts.		Set	**190**	1,594			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
Two single-phase Cutouts		Set	**132**	1,063			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
Pad Mounted Switch PMH4		Unit	**22**	5,534			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
Pad Mounted Switch PMH 43W		Unit	**58**	6,824			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
Pad Mounted Switch PMH6		Unit	**2**	8,207			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
Pad Mounted Switch PMH9		Unit	**22**	6,574			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
Subsurface 600 A 2 Ways.		Unit	**51**	6,824			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
Subsurface 600 A 3 Ways, 2 Ways switched.		Unit	**36**	6,824			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
Subsurface 600 A 3 Ways, 3 Ways switched.		Unit	**28**	6,917			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723

Subsurface 200 A Fused Switch.	Unit	**54**	6,917			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
Recloser	Unit	**29**	9,404			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
		1,002																		
SMUD																				
Overhead three-phase gang operated switch		379	$ 4,338	$ 1,498,018																
Three single-phase Cutouts.	Set	190	$ 711	$ 134,735																
Two single-phase Cutouts	Set	132	$ 581	$ 76,402																
Pad Mounted Switch PMH9		273	$ 13,000	$ 3,549,000																
Recloser		29	$ 31,000	$ 899,000																
		1,002		**$ 6,157,154**	**$ 6,157,154**															
SMUD does not install single-phase cutout switches																				
SMUD does not install sub-surface switches																				
Assumes pole is existing in the field.																				
CAPACITORS BANKS																				
Overhead Capacitors Bank 3 x 100 kVAR .	Unit	**5**	4,458			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
Overhead Capacitors Bank 3 x 200 kVAR .	Unit	**46**	4,458			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
Overhead Capacitors Bank 3 x 300 kVAR.	Unit	**46**	4,458			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
Overhead Capacitors Bank 3 x 300 kVAR., 3 x 200 kV.	Unit	**1**	8,272			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
Overhead Capacitors Bank 6 x 100 kVAR.	Unit	**16**	8,272			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
Overhead Capacitors Bank 6 x 200 kVAR.	Unit	**15**	8,272			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
Overhead Capacitors Bank 6 x 300 kVAR.	Unit	**41**	6,105			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
Overhead Capacitors Bank 3 x 200 and 3 x 100 kVAR.	Unit	**2**	8,272			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
Pad Mounted Capacitors Bank 3 x 300 kVAR.	Unit	**3**	6,071			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
Pad Mounted Capacitors Bank 6 x 300 kVAR.	Unit	**10**	8,623			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
		185																		
SMUD																				
Overhead Capacitors Bank 3 x 200 kVAR .		93	4,338	$ 402,978																
Overhead Capacitors Bank 6 x 200 kVAR.		92	$ 10,600	$ 975,200																
		185		**$ 1,378,178**	**$ 1,378,178**															
SMUD does not install padmount capacitor banks.																				
Assumes pole is existing in the field.																				
REGULATORS																				
4 Step Voltage Regulator	Unit	**7**	1,810			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
32 Step Voltage Regulator	Unit	**1**	2,137			1984	20	30%	70%	365	R1	37	54	37.30%	-49%	55.58%	45	273	477	0.5723
		8																		
SMUD																				
32 step voltage regulator		8	$ 20,000	$ 160,000																
SMUD does not install 4-step regulators				**$ 160,000**	**$ 160,000**															
Assumes poles are existing in the field.																				
TOTAL					**$ 204,337,288**															
Streetlights					**$1,827,518**															
GRAND TOTAL					**$ 206,164,806**															

APPENDIX F

Power Supply Costs

PG&E -- Assumptions for Developing Yolo Power Costs

Start Year	2008
Input Costs in Year Dollars	2005

System Load - Year 1			Escal./yr	
	Peak Demand	MW	2%	370
	Peak Demand + Reserves	MW		425
	Annual energy (2008)	MWh	2%	1,382,340

		Unit	Escal./yr	Baseload	Peaking
Resource Capacity					
	Capacity Reserve	% of Peak			15%
	Percent of Peak Demand	%of Peak+Reserves		38%	62%
	Capacity - Year 1	MW		160	265
Resource Energy					
	Percent of System Load Served	%of Ann. Energy		86%	14%
	Energy - Year 1	MWh		1,194,342	187,998
	Capacity Factor - calculated	annual %		85%	8%
Fixed Contract Costs					
	Thermal Capital Cost	$/kW	2.0%	720	556
	Insurance	% of Plant Cost	2.0%		
	Property tax	% of Plant Cost	2.0%		
	Debt/Equity return	%		8.2%	8.2%
	Amortization period	years		25	25
	Levelized Capital Cost - Year 1	$/kW-yr		$69	$53
	Insurance & Property Tax	$/kW-yr		$13	$10
	Thermal Plant Fixed O&M	$/kW-yr	2.0%	6.0	12.1
	PG&E Share of Fixed Costs	% of Fixed Costs		100%	50%
	*Contract Capacity Payment	$/kW-yr		$88	$38
	*SMUD's share				
Variable Contract Costs					
	Fuel Costs				
	Heat Rate	Btu/kwh		7,200	10,000
	Gas Price	$/MMBtu	1.0%	see input table	
	Total Fuel - Year 1	$/MWh		47	66
	Thermal Plant Var O&M	$/MWh	2.0%	2.5	9.7
	Contract Energy Payment	$/MWh		50	75
Ancillary Services					
	Regulation Requirements	% of Hrly Load			
	Unit cost	$/MWh	2.0%		
Renewables					
	Year 2006 Goal	% of Load			
	Year 2011 Goal	% of Load			

SMUD - Assumptions for Development of Yolo Power Costs

Start Year	2008
Input Costs in Year Dollars	2005

			Escal./yr		
System Load - Year 1					
	Peak Demand	MW	2%	370	
	Peak Demand + Reserves	MW		425	
	Annual energy	MWh	2%	1,382,340	Beck input for years 2008-2027

		Unit	Escal./yr	Baseload	Peaking	Additional Costs
Resource Capacity						
	Capacity Reserve	% of Peak			15%	
	Percent of Peak Demand	%of Peak+Reserves		38%	62%	
	Capacity - Year 1	MW		160	265	
Resource Energy						
	Percent of System Load Served	%of Ann. Energy		86%	14%	
	Energy - Year 1	MWh		1,194,342	187,998	
	Capacity Factor - calculated	annual %		91%	8%	
Fixed Contract Costs						
	Thermal Capital Cost	$/kW	2.0%	720	556	
	Insurance	% of Plant Cost	2.0%			0.6%
	Property tax	% of Plant Cost	2.0%			1.2%
	Debt/Equity return	%		5% plus 30 Coverage	8.2%	
	Amortization period	years		25	25	
	Levelized Capital Cost - Year 1	$/kW-yr		$0	$53	
	Insurance & Property Tax	$/kW-yr		$13	$10	
	Thermal Plant Fixed O&M	$/kW-yr	2.0%	6.0	12.1	
	SMUD Share of Fixed Costs	% of Fixed Costs		100%	50%	
	*Contract Capacity Payment	$/kW-yr		$19	$38	
	*SMUD's share					
Variable Contract Costs						
	Fuel Costs					
	Heat Rate	Btu/kwh		7,200	10,000	
	Gas Price	$/MMBtu	1.0%	see input table		
	Total Fuel - Year 1	$/MWh		47	66	
	Thermal Plant Var O&M	$/MWh	2.0%	2.5	9.7	
	Contract Energy Payment	$/MWh		50	75	
Ancillary Services						
	Regulation Requirements	% of Hrly Load				1.0%
	Unit cost	$/MWh	2.0%			13.8
Renewables						
	Year 2006 Goal	% of Load				10%

APPENDIX G

Debt Service Forecast

Annexation Debt Service Forecast

	Beck Debt Service			Revised	SMUD			Taxable	Tax-Exempt	Equity Inv.	Equity Inv.	Additional	Additional	
	Taxable	Tax-Exempt	Total	Debt Service	Revenue Requirement	Beg. Cash	Annual Cover	Capital Additions	Capital Additions	Taxable Cap. Additions	Tax-Exempt Cap. Add.	Taxable Debt	Tax-Exempt Debt	End. Cash
2008	8,136	2,535	10,671	10,335	13,436	-	3,101	111,504	31,000	-	-	111,504	31,000	3,101
2009	8,136	2,573	10,709	10,675	13,878	3,101	3,203	-	8,331	-	3,101	-	5,231	3,203
2010	8,136	2,759	10,895	11,015	14,320	3,203	3,305	-	8,431	-	3,203	-	5,228	3,305
2011	10,490	2,948	13,439	11,356	14,762	3,305	3,407	-	8,533	-	3,305	-	5,229	3,407
2012	10,490	3,142	13,632	11,696	15,205	3,407	3,509	-	8,639	-	3,407	-	5,232	3,509
2013	10,490	3,790	14,281	11,711	15,224	3,509	3,513	-	3,736	-	3,509	-	227	3,513
2014	10,490	3,966	14,457	11,732	15,252	3,513	3,520	-	3,848	-	3,513	-	334	3,520
2015	10,490	4,175	14,666	11,761	15,290	3,520	3,528	-	3,963	-	3,520	-	443	3,528
2016	10,490	4,388	14,879	11,797	15,337	3,528	3,539	-	4,082	-	3,528	-	554	3,539
2017	10,490	4,608	15,098	11,841	15,393	3,539	3,552	-	4,204	-	3,539	-	665	3,552
2018	10,490	4,833	15,324	11,891	15,459	3,552	3,567	-	4,330	-	3,552	-	778	3,567
2019	10,490	5,066	15,556	11,949	15,534	3,567	3,585	-	4,460	-	3,567	-	893	3,585
2020	10,490	5,305	15,795	12,015	15,619	3,585	3,604	-	4,594	-	3,585	-	1,009	3,604
2021	10,490	5,540	16,031	12,088	15,715	3,604	3,626	-	4,732	-	3,604	-	1,128	3,626
2022	10,490	5,783	16,274	12,169	15,820	3,626	3,651	-	4,874	-	3,626	-	1,248	3,651
2023	10,490	6,027	16,517	12,259	15,936	3,651	3,678	-	5,020	-	3,651	-	1,369	3,678
2024	10,490	6,278	16,768	12,356	16,062	3,678	3,707	-	5,171	-	3,678	-	1,493	3,707
2025	10,490	6,536	17,026	12,461	16,199	3,707	3,738	-	5,326	-	3,707	-	1,619	3,738
2026	10,490	6,801	17,291	12,575	16,347	3,738	3,772	-	5,486	-	3,738	-	1,747	3,772
2027	10,490	7,073	17,564	12,697	16,506	3,772	3,809	-	5,650	-	3,772	-	1,878	3,809
	202,746	94,126	296,872	236,380	307,294		70,914	111,504	134,411	-	67,105	111,504	67,306	

Capital Additions

	Taxable			**Tax-Exempt**						
	T&D Acquisition	Stranded/Severance Costs	Total Taxable	Severance Costs	Start-Up/ Upgrades	Litigation Fees	Cost of Issuance	Annual Upgrades	Generation	Total Tax-Exempt
2008	109,152	2,351	111,504	-	20,000	10,000	1,000	-		31,000
2009	-	-	-	-	5,012	-	-	3,319		8,331
2010	-	-	-	-	5,012	-	-	3,419		8,431
2011	-	-	-	-	5,012	-	-	3,521		8,533
2012	-	-	-	-	5,012	-	-	3,627		8,639
2013	-	-	-	-	-	-	-	3,736		3,736
2014	-	-	-	-	-	-	-	3,848		3,848
2015	-	-	-	-	-	-	-	3,963		3,963
2016	-	-	-	-	-	-	-	4,082		4,082
2017	-	-	-	-	-	-	-	4,204		4,204
2018	-	-	-	-	-	-	-	4,330		4,330
2019	-	-	-	-	-	-	-	4,460		4,460
2020	-	-	-	-	-	-	-	4,594		4,594
2021	-	-	-	-	-	-	-	4,732		4,732
2022	-	-	-	-	-	-	-	4,874		4,874
2023	-	-	-	-	-	-	-	5,020		5,020
2024	-	-	-	-	-	-	-	5,171		5,171
2025	-	-	-	-	-	-	-	5,326		5,326
2026	-	-	-	-	-	-	-	5,486		5,486
2027	-	-	-	-	-	-	-	5,650		5,650
	109,152	2,351	111,504	-	40,049	10,000	1,000	83,362	-	134,411

Assumptions:
Borrowing and equity drawdown on Jan. 1 each year
Annual cover based on current year debt service
Annual cover is not used to fund capital additions for the year in which recovered
Cash is derived from cover and is first used to fund taxable capital additions, then tax-exempt additions
Levelized debt service payment

Debt term, years	30	
Cover requirement	0.3	
Taxable rate	6.250%	(per Beck study)
Tax-exempt rate	5.000%	(80% of taxable rate)

denotes an input variable

Annexation Debt Requirements

Taxable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Existing Facilities 2008	$ 109,152,432										
Stranded Costs	$ -										
Total Taxable	*$ 109,152,432*	N/A									
Non Taxable											
Severance Costs	$ 2,351,153										
Start-Up	$ 20,000,000	$ 5,012,371	$ 5,012,371	$ 5,012,371	$ 5,012,371						
Litigation Fees	$ 10,000,000										
Cost of Issuance	$ 1,000,000										
Total Non-Taxable [1]	*$ 33,351,153*	*$ 8,331,331*	*$ 8,430,900*	*$ 8,533,456*	*$ 8,639,088*	*$ 3,735,519*	*$ 3,847,584*	*$ 3,963,012*	*$ 4,081,902*	*$ 4,204,359*	*$ 4,330,490*
Total 1st Yr. Debt	*$ 142,503,585*										

[1] Includes expected reimbursements for Rule 15 and Rule 16.