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PRELIMINARY BENCHMARKING STUDY

CHUGACH ELECTRIC ASSOCIATION

compared to
860 OTHER U.S. ELECTRIC DISTRIBUTION COOPERATIVES

by Lee Ann Gerhart, CPA (Texas)
for
Citizens for an Independent Chugach Electric

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Executive Summary

Purpose:

To evaluate how efficiently Chugach Electric Association is run and to make appropriate recommendations for further study and improvement of the cooperative.

Background:

Despite enjoying some of the lowest input fuel costs in the country for generating power, Chugach Electric Association retail electric rates are above the U.S. national average.

This study identifies those factors which are contributing to the apparently high rates that CEA member-owners pay. The main emphasis is on labor. Next to the cost of power, labor is an electric utility's highest cost component, and unlike taxes, labor costs are largely within management's control. While it has been known that labor rates at CEA appear to be very high compared to the open market, it was not known to what extent these high labor rates equate to productivity and organizational efficiency at CEA.

Benefits of Benchmarking:

Benchmarking compares overall organizational efficiency by evaluating the combined effects of labor rates and productivity. This permits the emphasis to move beyond salary comparisons for individual employee positions.

Co-op consumers are captive customers who cannot take their business elsewhere if costs get out of control. Market forces function imperfectly under these circumstances and benchmarking can be used by co-op members to judge how well their public utility

*This study was performed on a volunteer basis for Citizens for an Independent Chugach Electric.

regulatory authorities are protecting their interest against the harmful effects of monopoly that can result from utility exclusive service areas.

Source of Benchmarking Data:

A computer tape was obtained from the Rural Electrification Administration (REA) providing 745 pieces of loan, operating, and financial statistics for 878 electric distribution co-ops, as reported on the 1992 Financial and Statistical Reports (Form 7).

Findings: *Payroll / Cost of Living Assessment*

Kodiak Electric Association and CEA had the highest average pay per hour of any distribution or G&T cooperative in the nation (76% and 68% above the national average). Homer Electric Association placed third in distribution pay behind Kodiak and CEA. These rankings were made on an equalized basis after cost of living adjustments and differentials between distribution and generation salaries were taken into account.

The high rate per hour paid at CEA is partially a result of both higher amounts of overtime and higher overtime rates. CEA employees worked 34% more overtime than those at the average distribution co-op. Overtime provides only a partial explanation for the higher rate per hour. If all overtime at CEA were paid at triple time and all other co-ops at only time and a half, CEA's base rate would still be $8.00 per hour higher than a comparable rate for the average distribution co-op.

Findings: *Productivity Assessment*

CEA appears to be overstaffed. Actual hours worked exceeded hours for co-ops of the same size and service area density by 12.6%, or 33 full-time equivalent employees.

Findings: *Estimated Correctable Labor Inefficiency Cost*

Combining the effects of staffing and wages is a measure of a cooperative's labor efficiency. Whether we look at payroll as a function of megawatt hours, number of customers, or distribution line miles serviced, the payrolls of Alaska's cooperatives far exceed national norms. Even after making cost of living corrections, CEA, MEA and HEA all fall in the bottom 10% of the 861 co-ops in net labor efficiency. CEA would need to reduce distribution payroll by 47% to achieve just average national labor efficiency for a co-op of its size. Striving to be in the top 10 percent or even the top quartile in efficiency would require still further cost reductions.

For G&T and distribution combined, these inefficiencies cost the ratepayers at CEA over $11 million a year -- about 12% of the retail rate of 8.1¢ per kwh (1.0¢). Future CEA management ultimately has the ability to eliminate these inefficiencies by more careful management of the cooperative.

Findings: *Estimated Non-correctable Labor Inefficiencies from Past Capital Projects*

Low labor productivity and excessive wages on past capital projects continue to be charged to the ratepayers as excess interest and amortization of the cooperative's long term debt. Such costs are now estimated to be $7 million a year. These costs are now unavoidable and are beyond any future management's ability to correct. They will continue over the life of the asset in addition to the $11 million in controllable labor inefficiencies previously described.

Findings: *Summary of All Labor Inefficiencies*

The total labor inefficiencies (both correctable and non-correctable) at CEA add up to about $18 million a year -- 18% of the retail rate of 8.1¢ per kwh (1.4¢).

Recommendations:

Results of this review indicate that CEA is clearly among the least efficient distribution co-ops in the U.S. Labor wage rates are extremely high and there appears to be substantial overstaffing. The benefits that CEA members should be enjoying as residents of a resource-rich area with the nation's lowest cost natural gas input fuel cost are not being realized. CEA retail electric rates are above the national average.

A complete audit and process review of all CEA operations (both distribution and generation & transmission) by a nationally-recognized authority with benchmarking and electric utility management and redesign expertise is warranted. It should make specific operational recommendations with an ultimate goal of achieving improvements that would place CEA in the upper quartile of co-ops nationally in the economically efficient delivery of services to its member-ratepayers.

PRELIMINARY BENCHMARKING STUDY

CHUGACH ELECTRIC ASSOCIATION

compared to

860 OTHER U.S. ELECTRIC DISTRIBUTION COOPERATIVES

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Purpose:

The purpose of this study is to assess if Chugach Electric Association is an efficiently run cooperative and to make appropriate recommendations for further study and improvement.

Background:

Despite enjoying some of the lowest input fuel costs in the country for generating power, Chugach Electric Association retail rates are above the U.S. national average[2].

Major factors affecting utility rates are 1) cost of power, 2) taxes, 3) interest rates, 4) labor rates and efficiency, 5) materials, and 6) margins. This study identifies those factors which are contributing to the apparently high rates that CEA member-owners pay. The main emphasis is on labor. Next to the cost of power, labor is an electric utility's highest cost component, and unlike taxes, labor costs are largely within management's control. While it has been known that labor rates at CEA appear to be very high compared to the open market, it was not known to what extent these high
labor rates equate to high productivity and organizational efficiency at CEA.

For labor rate comparisons, it is relatively easy to compare salaries for many specific CEA positions to the local Anchorage market. For example, typical CEA meter readers are paid an average of $30 an hour in salary plus benefits. Jobs in the open

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[1] This study was performed on a volunteer basis for Citizens for an Independent Chugach Electric. Ms. Gerhart is a corporate financial and operations analyst employed by Alyeska Pipeline Service Co. She holds an active Texas Certified Public Accountant Certificate. This work was contributed by her personally and was not performed as part of her position at Alyeska.

[2] *National Energy User News* reported in December 1994 that retail rates for commercial natural gas customers nationally ranged from the low of $2.27 (Alaska) to $4.85 (national average) to the high of $12.64 (Hawaii) per MCF. Retail rates for commercial electricity customers nationally ranged from a low of 3.20¢ (PUD #1 Clark City WA) to 7.27¢ (national median average) to a high of 16.62¢ (Hawaii Electric Light) per kwh. Chugach Electric Association reported 7.76¢ per kwh for commercial customers (45 percentile in cost ranking).

market requiring the same skills and experience pay $10 to $15 an hour total compensation.

Such simple wage rate comparisons are useful indications of an organization that is over or underpaying wages compared to the open market. They do not, however, measure the efficiency of an organization.

Benefits of Benchmarking:

Benchmarking can bring to light costs associated with inefficiencies due to overstaffing, featherbedding, and poor management. Benchmarking allows comparison of the combined effects of labor rates and productivity. This permits the emphasis to move beyond individual salary comparisons to the evaluation of overall organizational efficiency. Higher individual productivity can more than justify paying a particular individual at a higher than the average rate without adversely affecting total operating costs.

Benchmarking is also useful in identifying the most efficient cooperatives. Subsequent study, interviews, and in-depth benchmarking with these cooperatives should result in learning ways to improve the efficiency of our own cooperative. Benchmarking can highlight areas for improvement.

Benchmarking provides a measure of performance. It provides a means of assessing where we are, setting targets for where we want to be, and a way to measure our improvement over time relative to others in the industry. Benchmarking can be a measure of success and allows employees to know the results of their efforts as they strive to make their cooperative the best in the business.

In addition to being a powerful management tool, benchmarking provides the co-op member-ratepayers with an unbiased comparison of efficiency with other co-ops. It can be used as a report card on management as an input to determining whether the interests of the ratepayers are being served.

Co-op consumers are captive customers who cannot take their business elsewhere if costs get out of control. Market forces function imperfectly under these circumstances and benchmarking can additionally be used by co-op members to judge how well their public utility regulatory authorities are protecting their interest against the harmful effects of monopoly that can result from utility exclusive service areas.

Source of Benchmarking Data:

A computer tape was obtained from the Rural Electrification Administration (REA) providing 745 pieces of loan, operating, and financial statistics for 878 electric distribution cooperatives, as reported on their 1992 Financial and Statistical Reports (Form 7). This was converted by a volunteer into PC data files. Eighteen of the co-ops filed incomplete statistical reports and were deleted from the study, leaving 860 co-ops in the database for this benchmarking study. Chugach Electric Association (CEA) is no longer an REA borrower, therefore financial data for CEA was not on the tape. CEA continues to summarize its finances on REA Form 7, so entries were made manually for CEA using a hard copy of CEA's 1992 Form 7.

Analysis Methodology:

Three main questions were posed in the analysis of the database of 861 co-ops:

Question 1 - How do pay rates at CEA compare to the national norms?

Question 2 - How do staffing levels at CEA compare to the national norms?

Question 3 - Combining the results of the answers to the first two questions, how does the overall economic efficiency of CEA compare to national norms?

CEA is unique and direct comparisons with other co-operatives is misleading without normalizing the data to account for these differences.. CEA is the only combined Generation and Transmission (G&T) and Distribution co-operative in the U.S. It reports only aggregate financial statistics and does not segregate G&T and Distribution activities on its Form 7 (distribution) or Form 12 (G&T) reports. Of the other 860 U.S. co-ops, 834 non-Alaskan co-ops are pure distribution co-ops; 14 non-Alaskan co-ops report power generation ranging from 0.02% to 84.72%; and all 12 of the other Alaskan co-ops generated from 0.2% to 100% of their own power.

To compare distribution operations among the co-ops, the 3 non-Alaskan co-ops generating more than 4% of their power were discarded and the other 11 were retained under the assumption that their financial characteristics reflected essentially their distribution operations. Homer Electric Association at 0.2% and Matanuska Electric Association at 0.8% generation were also treated as though they were 100% distribution. CEA and the other 10 Alaskan co-ops, with generation ranging from

16.5% to 100%, required special handling to segregate the distribution cost components. The methods used will be described under Analysis Methodology: *Generation & Transmission (G&T) vs. Distribution.*

Analysis Methodology: *Pay Rates and Cost of Living Adjustments*

Question 1 - How do pay rates at CEA compare to the national norms?

Electric Co-ops report total payroll (without benefits) and total hours worked. Dividing one by the other produces a simple rate per hour worked. These rates were adjusted using Runzheimer's International Living Cost Standards for December 1993 to place them all on an equal basis for comparison purposes. Runzheimer looks at the comparative income necessary to maintain a certain standard of living in different areas of the country.

Unlike other indexes (such as the ACCRA - American Chamber of Commerce Research Association), Runzheimer takes into account the effect of state and local taxes on cost of living. Since taxes are a substantial part of the cost of living, any realistic comparison must include differences in local taxation. Because Alaska is a low tax state, this means that the Runzheimer cost of living adjustment for Alaska is somewhat lower than the ACCRA index. On the other hand, Runzheimer does not include the effect of Alaska's Permanent Fund Dividend of about $900 per person, and therefore overstates the actual cost of living increase in Alaska over the rest of the country where families do not receive a permanent fund dividend.

Runzheimer was used for Anchorage, Fairbanks, and Juneau but was not available for smaller Alaskan communities. To account for the higher cost of living in the bush, the Runzheimer cost of living adjustment for Anchorage was further adjusted by the 1985 Alaska School Districts Household Price Differentials as published in the October 1989 Alaska Economic Trends.

Generation average pay tends to be higher than for distribution pay because of differences in the skill level of employees. Distribution activities include a higher proportion of office workers which tend to have lower salaries than field workers (lineman and generation plant employees). Therefore the rate per hour for Alaskan combined co-ops was reduced to more fairly reflect a pure distribution average pay rate. The method used to accomplish this will be described under Analysis Methodology: *Generation & Transmission (G&T) vs. Distribution.*

Adjusted distribution pay rates were plotted on a bar graph in descending order (see Figure 1, *Distribution Employee Pay as a Percent of National Average of 861 Electric Co-ops -- After Correction for Cost of Living in Different Areas & Removal of Estimated G&T Wages*).

Deviation of the cost of living adjusted (COLA) distribution pay per hour from the national average is the over or under charge per hour to be used as one of the factors in assessing bottom line labor efficiency.

Analysis Methodology: *Productivity Assessment*

Question 2 - How do staffing levels at CEA compare to the national norms?

To analyze productivity, customers served per equivalent distribution employee[3] were plotted against service area density to develop an average trend line. The graph is useful in assessing overstaffing and featherbedding. Co-ops lying above the trend line are less productive than the national average co-op; those lying below the line are more productive (See Figure 2, *Electric Distribution -- Customers per Estimated Distribution Employee vs. Service Area Density*).

The labor effort to serve an urban or suburban area can be expected to be lower than the effort to serve a sparsely populated rural area. This is born out by the trend line which indicates that it takes about 5.7 distribution employee to serve 1000customers for rural co-ops with 1 customer per distribution mile of line compared to a leveling out at about 3.6 distribution employees per 1000 customers for co-ops that have a denser service area (over 7 customers per distribution mile of line) like CEA.

The results are dependent on the split between distribution and generation hours for the combined co-ops, which will be described under Analysis Methodology: *Generation & Transmission (G&T) vs. Distribution.*

Analysis Methodology: *Net Labor Efficiency*

Question 3 - Combining the results of the answers to the first two questions, how does the overall economic efficiency of CEA compare to national norms?

[3] Using the reported number of full time employees straight off the Form 7 would not take into consideration that the average number of hours worked per full time employee varied from co-op to co-op. This variation was normalized by dividing the number of distribution hours worked for each co-op by the average hours worked per employee for all 861 co-ops combined (2221 hours) to arrive at an "equivalent" number of employees for each individual co-op. The graph would have looked the same as plotting the number of customers per distribution hour worked.

To obtain the net labor efficiency of the co-ops, the distribution hours worked times the COLA distribution pay per hour for the individual co-op is compared to its expected distribution hours for a co-op of the same service density times the national average COLA distribution rate per hour. This can be restated as an efficiency or excess per kwh (See Figure 3, *Electric Distribution --COLA Distribution Payroll per Retail kwh Sold vs. Service Area Density).*

Analysis Methodology: *Distribution Markup*

Total distribution markup for each co-op is defined as Total Sales less the Cost of Power and Taxes. This distribution markup then covers not only the cost of labor discussed in the previous section but also debt, amortization, and other expenses and "profit" (which in a non-profit co-op are called margins which are returned, without interest, to the co-op owners after a period of 10 to 20 years).

For the combined Alaskan co-ops (with both distribution and generation activities), depreciation and interest on long term debt was reported on Form 7's in the aggregate for generation and distribution. For these co-ops, total distribution markup was defined as above, less a proportionate share of depreciation and interest based on the ratio of the generation and transmission plants to total plant value.

For CEA, distribution markup was calculated using data from the March 1993 Simplified Rate Filing based on 1992 data (see Figure 4, *Chugach Electric Association Rate Filing Based on Calendar Year 1992, Costs by Activity by Customer Type*) to isolate distribution expenses, including depreciation and interest.

Plotting Distribution Markup against Customers per Distribution Mile yielded a trend line of average performance for the 848 non-Alaskan co-ops in the database showing the expected markup based on service area density. (See Figure 5, *Electric Distribution Markup per kwh Retail vs. Service Area Density*). The difference between a co-op's actual markup and its expected markup is its net economic efficiency or inefficiency.

Analysis Methodology: *Generation & Transmission (G&T) vs. Distribution*

As stated above, to compare distribution operations among the co-ops, the 3 non-Alaskan co-ops generating more than 4% of their power were discarded and the other 11 were retained under the assumption that their financial characteristics reflected essentially their distribution operations. HEA at 0.2% and MEA at 0.8% generation were also treated as though they were 100% distribution. CEA and the other 10

Alaskan co-ops, with generation ranging from 16.5% to 100%, required special handling to segregate the distribution cost components. For these co-operatives, distribution costs were split out using several methods, all yielding consistent results.

In the case of CEA, the data from the March 1993 Simplified Rate Filing based on 1992 data was used in arriving at distribution (63-67%) vs. generation (33-37%) payroll. Using the 1995 budget staffing projections, it appears that generation pay rates at CEA are about 1.3 times higher than distribution pay rates. A 4 to 3 ratio of generation to distribution salaries is also supported by comparing the national average COLA rate for the 45 G&T co-ops reporting payroll information on their Form 12's ($20.70/hour) to the national average COLA rate for the 848 non-Alaskan distribution co-ops ($15.64/hour). Using this information, a split was solved algebraically, estimating that 33% of CEA employee hours are generation and 67% are distribution, consistent with the results from the Simplified Rate filing.

For the other Alaskan co-ops, the ratio of generated to purchased power was examined, and the percentage of distribution labor was estimated based on whether that ratio was higher or lower than CEA. By applying the 4:3 ratio of generation to distribution pay per hour, as discussed above, it was possible to estimate a distribution pay rate algebraically from total payroll. A survey was sent to the various Alaskan co-ops requesting a breakout of distribution and generation employees, hours and payroll. The responses received supported the estimation process even with some personnel supporting both distribution and generation activities. Estimated distribution payroll as a percent of total expenses was compared to other co-ops and between bush communities as yet another check for reasonableness. While the split of distribution payroll for these co-ops is not exact, it is sufficient to support basic trends and conclusions.

As a final check for reasonableness, the distribution payroll splits were borne out by comparisons of derived generation pay for the Alaskan co-ops to that of the 45 G&T cooperatives. The Alaskan co-operatives exhibited similar patterns in a G&T comparison as in distribution.

Findings:

The distribution markup over the cost of power for the Alaskan cooperatives far exceeded the national average for cooperatives of their size. These markup cost components primarily consist of labor (base rates, staffing levels, and cost of living adjustments), interest on debt, depreciation and amortization, and margins (co-op profit eventually returned to members after 10-20 years).

Findings: *Payroll / Cost of Living Assessment*

Kodiak Electric Association and CEA had the highest pay per hour of any distribution or G&T cooperative in the nation. HEA placed third in distribution pay behind Kodiak and CEA.

IMPORTANT NOTE: These rankings were made on an equalized basis after cost of living adjustments and differentials between distribution and generation salaries were taken into account. For example, the average wage (both without benefits) for CEA employees was $30.39 per hour vs. the national co-op average of $15.00 per hour. After adjusting all co-ops for cost of living in their respective areas, the CEA average rate was reduced to $29.22 per hour. To remove the effect of higher generation salaries, the CEA average COLA distribution rate was further reduced to $27.52 per hour. This rate is 68% above the comparable national average COLA distribution rate of $15.64. CEA's G&T COLA rate was $35.09 per hour vs. a comparable national average COLA generation rate of $20.70 per hour.

The high rate per hour paid at CEA is partially a result of higher amounts of overtime and higher overtime rates. CEA employees worked 34% more overtime than those at the average distribution co-op[4]. Most of the labor contracts at CEA require the payment of overtime at double and triple base wages rather than the national norm of time and one half base. Since cost of living adjustments are included in the base pay, the Alaskan higher cost of living differential is also paid at double and triple time rates for every hour of overtime worked. The excessive overtime at CEA is a measure of management performance and indicates that CEA is operated less efficiently than the average co-op.

Overtime provides only a partial explanation for the higher rate per hour. If all overtime at CEA were paid at triple time and all other co-ops at only time and a half, CEA's base rate would still be $8.00 per hour higher than a comparable rate for the average distribution co-op.

Findings: *Productivity Assessment*

One would expect that such extraordinarily high salaries must be in compensation for high productivity. However such is not the case, even after normalizing the staffing levels to reflect "pure" distribution.

[4] 7.1% of all work at CEA was at overtime compared to 5.0% of all distribution co-op work nationally.

Using the regression curve developed by plotting employees per 1000 customers against service area density, as described under the analysis methodology, it was possible to calculate the expected number of distribution hours that CEA would have worked to simply achieve the national average in co-op productivity. Actual hours worked exceeded the predicted norm by 13.6%, or 35 full-time equivalent employees.

Although G&T benchmarking was beyond the scope of this study, some tests were made comparing CEA to 45 G&T co-ops nationwide to test the reasonableness of the split made between CEA distribution and G&T operations. Plotting Total MWH Produced or Generated against hours worked, CEA G&T staffing levels appear to be within the national norm for a G&T co-op of its size.

Findings: *Estimated Correctable Labor Inefficiency Cost*

Combining the effects of staffing and wages is a measure of a cooperative's labor efficiency. Whether we look at payroll as a function of megawatt hours, number of customers, or distribution line miles serviced, the payrolls of Alaska's cooperatives far exceed national norms. Even after making cost of living corrections, CEA, MEA and HEA all fall in the bottom 10% of the 861 co-ops in net labor efficiency. CEA would need to reduce distribution payroll by 47% to achieve just average national labor efficiency for a co-op of its size. Striving to be in the top 10 percent or even the top quartile in efficiency would require still further cost reductions.

For G&T and distribution combined, these inefficiencies cost the ratepayers at CEA over $11 million a year (Figure 6, *Chugach Electric Association--Preliminary Benchmarking Study Assessment Summary*). This is 12% of the retail rate of 8.1¢ per kwh (1.0¢). Future CEA management ultimately has the ability to eliminate these inefficiencies by more careful management of the cooperative. Striving to be better than the national distribution co-op norm would achieve even higher savings to the members.

Findings: *Estimated Non-correctable Labor Inefficiencies from Past Capital Projects*

Any labor inefficiencies resulting in excessive cost on past capital construction projects will continue to be charged to the ratepayers in the form of excess depreciation and amortization as well as interest on the cooperative's long term debt. Excessive cost from past capital projects can result from 1) the construction of unnecessary or excessively elaborate facilities or 2) low labor productivity and excessive wages. It was beyond the scope of this study to evaluate the first category of costs but comments can be made about the effects of low labor productivity and excessive wages on past capital projects.

A major cost component of capital construction is labor. The low efficiency in distribution labor at CEA would lead one to suspect that CEA capital projects also include a similar component of labor inefficiency. Ratepayers are charged with this inefficiency throughout the life of the capital asset in the form of depreciation and amortization expense that is included in their retail electric rates. A conservative labor estimate for capital assets would be 40% based on a review of capital projects budgeted by CEA for 1995 (using direct labor plus 60% of contractor costs). If 47% of labor costs for construction are also in excess of the national average, an estimated impact of inefficiencies on depreciation and amortization can be approximated.

Loan interest on long term debt is another major component of markup and it is similarly affected by any labor inefficiencies in the original capital construction projects. Estimating that 40% of capital construction is labor, CEA depreciation and interest expense is almost 20% in excess of what would be paid if CEA's labor efficiency were average, versus in the bottom 10 percent (as measured on an efficiency basis).

For distribution and G&T depreciation and interest, past economic inefficiencies due to labor are costing the ratepayers at CEA about $7 million a year (Figure 6). These costs are now unavoidable and are beyond any future management's ability to correct. They will continue over the life of the asset in addition to the $11 million in the controllable labor inefficiencies previously described.

Findings: *Summary of All Labor Inefficiencies*

The total labor inefficiencies (both correctable and non-correctable) at CEA add up to over $18 million a year -- 18% of the retail rate of 8.1¢ per kwh (1.4¢).

Findings: *Additional Comments - Long Term Financing Rates and Margins*

Electric rates are also affected by the financing rate on a cooperative's debt. The average lending rate for the REA co-ops was 5.07%. MEA and HEA interest rates are close to the national average. CEA's average interest rate is, however, 8.46%. For a cooperative such as CEA with high interest rates, the effects of past labor inefficiency on current electric rates is magnified. Higher interest must be paid to finance the additional project cost resulting from the inefficiency over the life of the cooperative's loans.

Net Margin is another major component of distribution markup. Margins for CEA, MEA and HEA are respectively 0.28¢, 1.13¢, and 0.81¢ per kwh. Margins are collected as part of rates and are each year credited to members as patronage capital credits.

They are paid out to members only after a 15 to 20 period, without interest. Their real value to ratepayers in the year they are collected is only a small part of the amount collected. One dollar in margins collected from ratepayers is only worth $0.31 in present dollars[5] if there is a certainty that it would actually be received by the same ratepayer. In reality, it is effectively worth nothing to many, if not most ratepayers. In the transient communities typical of most of Alaska, most ratepayers will move and not keep their addresses current with the co-op with the result that they never receive their capital credit payment.

Comments on Other Alaskan Co-ops:

This benchmarking study was undertaken primarily to provide CEA members with information on how well their cooperative compared with others. In the course of the study conclusions can be drawn that will be of value to the membership of other cooperatives in the state. Figure 7, *Annual Excess Charges to Ratepayers as a Result of Apparent Labor Overpayment and Overstaffing*, tabulates results for most Alaska Electric Cooperatives. It should be understood that these are preliminary results based on comparisons to norms for co-ops nationwide. These comparisons will be more meaningful for the co-ops on the railbelt intertie grid than they will for small co-ops in the bush which will understandingly have higher fixed costs and expenses for servicing plant in remote, costly locations.

Figure 8, *Matanuska Electric Association & Homer Electric Association--Preliminary Benchmarking Study Assessment Summary*, provides more detailed information labor inefficiencies at MEA and HEA. Correctable labor inefficiencies cost the ratepayers at MEA and HEA over $4 million a year each. Future MEA and HEA management ultimately has the ability to eliminate these inefficiencies by more careful management of their cooperatives. Striving to be better than the national distribution co-op norm would achieve even higher savings to their members.

Past economic inefficiencies due to labor are costing the ratepayers at MEA about $1.5 million a year and at HEA about $2 million a year (through excess depreciation and interest). These costs are now unavoidable and are beyond any future management's ability to correct. They will continue for MEA and HEA members over the life of the plant assets in addition to the $4 million a year in previously described correctable labor inefficiencies.

[5] At an interest rate of 6% as a capital credit paid out after 20 years.

These labor inefficiencies (both correctable and non-correctable) add up to about 14% of the retail rate of 9.7¢ per kwh (1.4¢) at MEA and about 17% of the retail rate of 9.0¢ per kwh (1.6¢) at HEA.

Limitations:

This benchmarking study has compared Chugach Electric Association to 860 other U.S. electric distribution cooperatives. It has been labeled preliminary because it was performed on a volunteer basis for Citizens for an Independent Chugach Electric. It is not (and was never intended to be) an exhaustive review of all the financial data available. It was intended to look at trends of how CEA compares to other co-ops in order to 1) establish if the high labor rates at CEA were justified by high overall productivity and organizational efficiency and 2) determine if more detailed and exhaustive management reviews were warranted.

Recommendations:

CEA is clearly among the least economically efficient of distribution co-ops in the United States. Labor wage rates are extremely high and there appears to be substantial overstaffing. The benefits that CEA member-ratepayers should be enjoying as residents of a resource-rich area with the nation's lowest cost natural gas input fuel cost are not being realized by CEA member-owners who pay retail electric rates above the national average.

Results of this review indicate that a complete audit and process review of CEA operations is warranted. In the interest of the ratepayers these studies should be given high priority. Such a review should be performed by a nationally-recognized authority with benchmarking and electric utility management and redesign expertise. It should include input from Alaskan utility experts and CEA management and it should make specific operational recommendations and outline a plan to improve the economic efficiency of CEA to 1) match national norms for economic efficiency of distribution co-ops and 2) achieve improvements that would ultimately put CEA in the upper quartile of co-ops nationally in economic performance of distribution activities.

Additionally, a study should be made to benchmark generation and transmission performance of Alaskan co-ops with ML&P and G&T co-ops and investor-owned utilities nationally and to make recommendations similar to those above.

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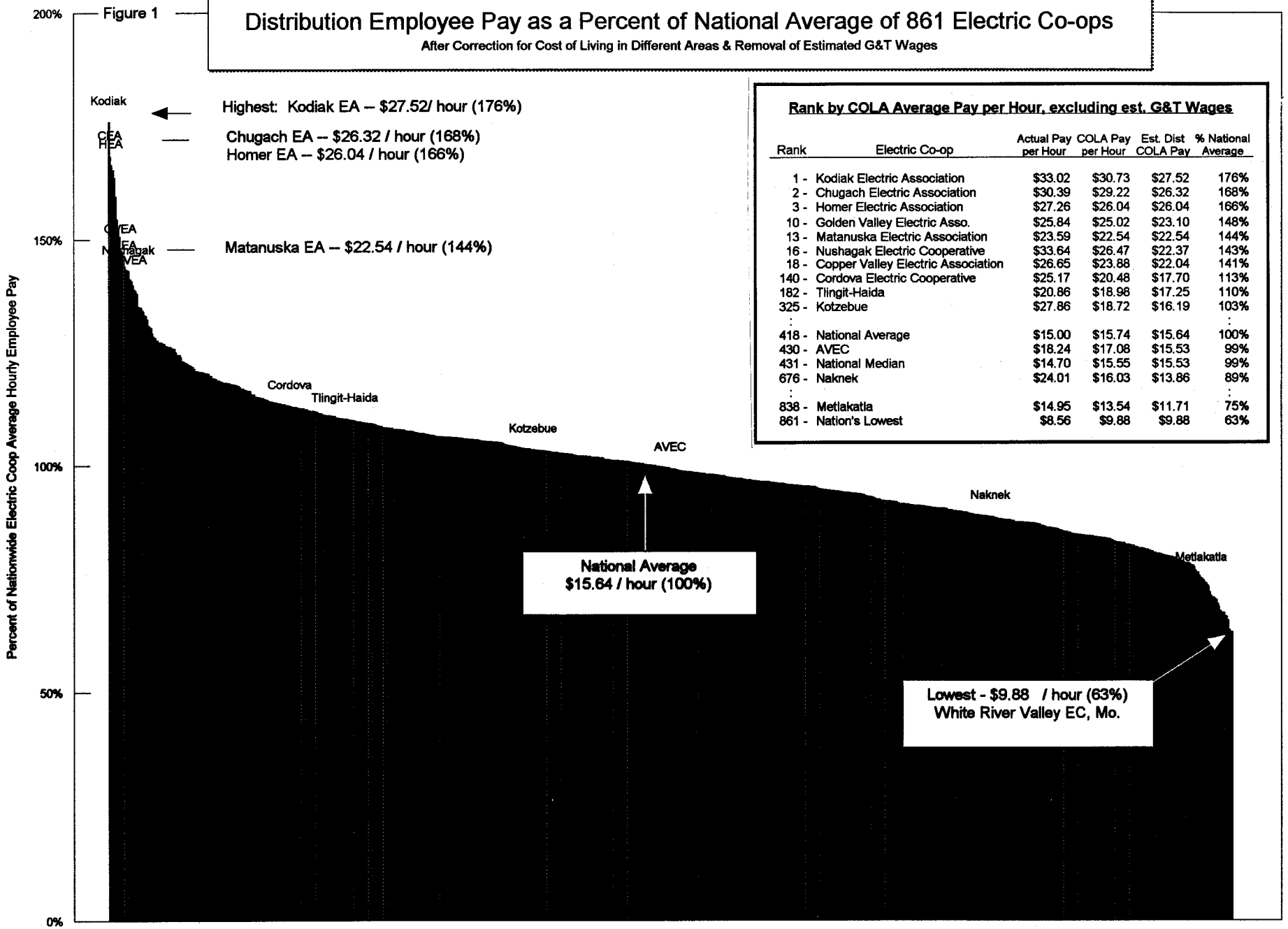
Figure 1

Distribution Employee Pay as a Percent of National Average of 861 Electric Co-ops

After Correction for Cost of Living in Different Areas & Removal of Estimated G&T Wages



Rank by COLA Average Pay per Hour, excluding est. G&T Wages

Rank	Electric Co-op	Actual Pay per Hour	COLA Pay per Hour	Est. Dist COLA Pay	% National Average
1 -	Kodiak Electric Association	$33.02	$30.73	$27.52	176%
2 -	Chugach Electric Association	$30.39	$29.22	$26.32	168%
3 -	Homer Electric Association	$27.26	$26.04	$26.04	166%
10 -	Golden Valley Electric Asso.	$25.84	$25.02	$23.10	148%
13 -	Matanuska Electric Association	$23.59	$22.54	$22.54	144%
16 -	Nushagak Electric Cooperative	$33.64	$26.47	$22.37	143%
18 -	Copper Valley Electric Association	$26.65	$23.88	$22.04	141%
140 -	Cordova Electric Cooperative	$25.17	$20.48	$17.70	113%
182 -	Tlingit-Haida	$20.86	$18.98	$17.25	110%
325 -	Kotzebue	$27.86	$18.72	$16.19	103%
:					:
418 -	National Average	$15.00	$15.74	$15.64	100%
430 -	AVEC	$18.24	$17.08	$15.53	99%
431 -	National Median	$14.70	$15.55	$15.53	99%
676 -	Naknek	$24.01	$16.03	$13.86	89%
:					:
838 -	Metlakatla	$14.95	$13.54	$11.71	75%
861 -	Nation's Lowest	$8.56	$9.88	$9.88	63%

1992 Wage Data

Figure 2

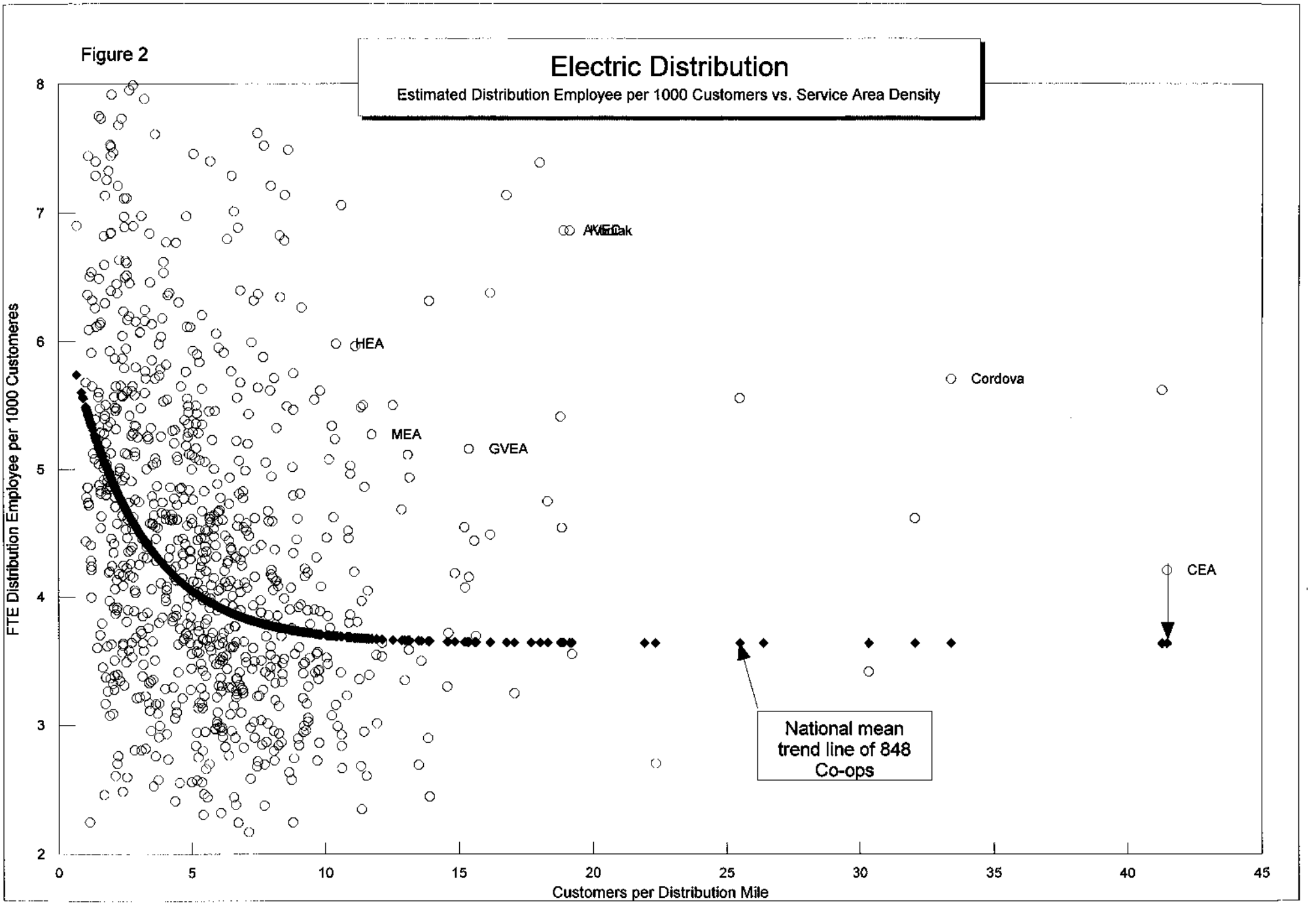

Electric Distribution
Estimated Distribution Employee per 1000 Customers vs. Service Area Density
FTE Distribution Employee per 1000 Customeres
Customers per Distribution Mile
8
7
6
5
4
3
2
0
5
10
15
20
25
30
35
40
45
HEA
MEA
GVEA
Cordova
CEA
National mean
trend line of 848
Co-ops

Figure 3

Electric Distribution

COLA Distribution Payroll per Retail KWH Sold vs. Service Area Density

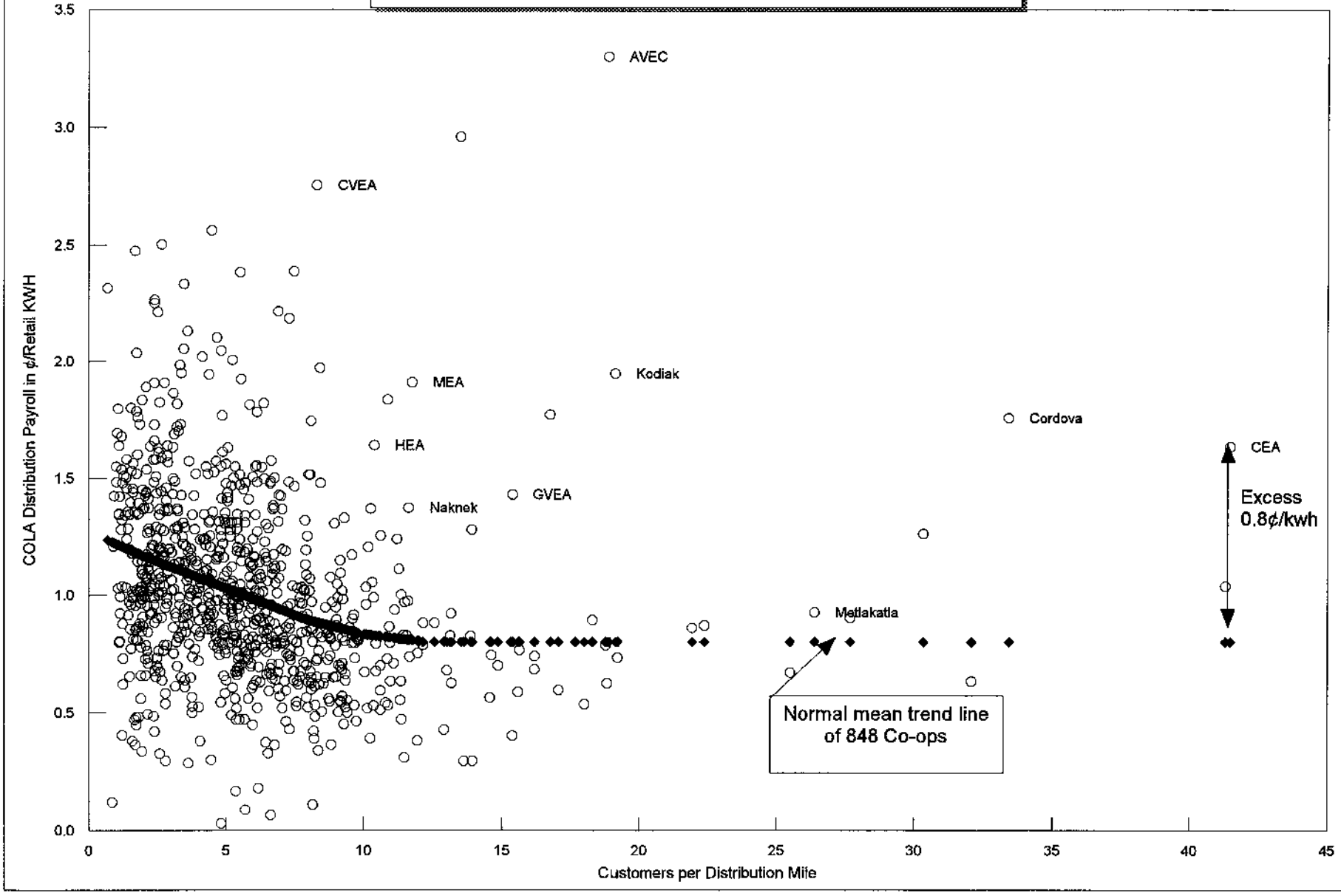


Figure 4

CHUGACH ELECTRIC ASSOCIATION RATE FILLING BASED ON CALENDAR YEAR 1992
Costs by Activity by Customer Type

	Residential	Small Genl	Large Genl	Lights	Total Retail	MEA	HEA	GVEA	SES	Total Wholesale	Total
Production											
Energy Costs	$8,398,372	$1,010,537	$7,649,449	$107,818	$17,166,176	$7,952,585	$5,434,595	$7,306,898	$879,583	$21,573,661	$38,739,837
Demand Costs	$4,531,084	$437,879	$3,079,501	$85,077	$8,133,541	$3,768,683	$2,635,384		$349,876	$6,753,943	$14,887,484
less Fuel Adj Items	($2,799,715)	($339,574)	($2,557,346)	($7,579)	($5,704,214)	($2,701,851)	($878,436)		($297,907)	($3,878,194)	($9,582,408)
less Other Rev	($20,197)	($1,952)	($13,727)	($379)	($36,255)	($16,799)	($11,747)		($1,560)	($30,106)	($66,361)
	$10,109,544	$1,106,890	$8,157,877	$184,937	$19,559,248	$9,002,616	$7,179,796	$7,306,898	$929,992	$24,419,304	$43,978,552
Rate / KWH	0.022151		0.019687	0.031564	0.020967	0.020427	0.019272	0.032564	0.019079	0.022477	0.021780
Transmission											
Energy Costs	$121,177	$14,581	$110,371	$1,556	$247,685	$114,745	$96,999		$12,691	$224,435	$472,120
Demand Costs	$3,229,991	$312,143	$2,195,228	$60,647	$5,798,009	$2,686,512	$1,878,639		$249,410	$4,814,561	$10,612,570
TIER & Int Costs	$7,528,195	$727,568	$5,119,082	$140,774	$13,515,619	$6,152,187	$4,302,135		$571,155	$11,025,477	$24,541,096
less Other Rev	($365,758)	($39,571)	($267,961)	($7,969)	($681,259)	($151,573)	($119,494)		($15,514)	($286,581)	($967,840)
	$10,513,605	$1,014,721	$7,156,720	$195,008	$18,880,054	$8,801,871	$6,158,279	$0	$817,742	$15,777,892	$34,657,946
Rate / KWH	0.023037		0.017364	0.033283	0.020239	0.019972	0.016530	0.000000	0.016776	0.014523	0.017164
	$20,623,149		$17,436,208	$379,945	$38,439,302	$17,804,489	$13,338,075	$7,306,898	$1,747,734	$40,197,196	$78,636,498
	0.045188		0.037051	0.064847	0.041206	0.040399	0.035802	0.032564	0.035855	0.037000	0.038943
Distribution											
Energy Costs	$1,723,150	$207,339	$1,569,489	$22,122	$3,522,100	$0	$0		$0	$0	$3,522,100
Demand Costs	$7,377,938	$717,134	$5,225,262	$92,223	$13,412,557	$0	$0		$0	$0	$13,412,557
TIER & Int Costs	$4,937,803	$479,954	$3,497,090	$61,721	$8,976,568	$0	$0		$0	$0	$8,976,568
Customer Costs	$1,929,286	$310,639	$334,981	$45,761	$2,620,667	$0	$0		$0	$0	$2,620,667
less Other Rev	($189,203)	($18,390)	($133,998)	($2,365)	($343,956)	$0	$0		$0	$0	($343,956)
	$15,778,974	$1,696,676	$10,492,824	$219,462	$28,187,936	$0	$0		$0	$0	$28,187,936
Rate / KWH	0.034574		0.025902	0.037457	0.030217					0.000000	0.013960
Customer Accounting											
Energy Costs	$599,568	$72,982	$527,340	$9,467	$1,209,357	$0	$0		$0	$0	$1,209,357
Demand Costs	$1,616,443	$157,118	$1,144,810	$20,205	$2,938,576	$0	$0		$0	$0	$2,938,576
TIER & Int Costs	$0	$0	$0	$0	$0	$0	$0		$0	$0	$0
Customer Costs	$3,232,024	$390,326	$498,796	$76,661	$4,197,807	$0	$0		$0	$0	$4,197,807
Lighting	$0	$177,339	$295,565	$709,355	$1,182,259	$0	$0		$0	$0	$1,182,259
less Other Rev	($611,938)	($73,903)	($94,440)	($14,514)	($794,795)	$0	$0		$0	$0	($794,795)
	$4,836,097	$723,862	$2,372,071	$801,174	$8,733,204	$0	$0		$0	$0	$8,733,204
Rate / KWH	0.010596		0.006579	0.136740	0.009362					0.000000	0.004325
	$20,615,071		$15,285,433	$1,020,636	$36,921,140						$36,921,140
	0.045170		0.032480	0.174197	0.039579						0.018285
Total											
Energy Costs	$10,842,267	$1,305,439	$9,856,649	$140,963	$22,145,318	$8,067,330	$5,531,594	$7,306,898	$892,274	$21,798,096	$43,943,414
Demand Costs	$16,755,456	$1,624,274	$11,644,801	$258,152	$30,282,683	$6,455,195	$4,514,023		$599,286	$11,568,504	$41,851,187
TIER & Int Costs	$12,465,998	$1,207,522	$8,616,172	$202,495	$22,492,187	$6,152,187	$4,302,135		$571,155	$11,025,477	$33,517,664
Customer Costs	$5,161,310	$700,965	$833,777	$122,422	$6,818,474	$0	$0		$0	$0	$6,818,474
Lighting	$0	$177,339	$295,565	$709,355	$1,182,259	$0	$0		$0	$0	$1,182,259
less Fuel Adj Items	($2,799,715)	($339,574)	($2,557,346)	($7,579)	($5,704,214)	($2,701,851)	($878,436)		($297,907)	($3,878,194)	($9,582,408)
less Other Rev	($1,187,096)	($133,816)	($510,126)	($25,227)	($1,856,265)	($168,372)	($131,241)		($17,074)	($316,687)	($2,172,952)
	$41,238,220	$4,542,149	$28,179,492	$1,400,581	$75,360,442	$17,804,489	$13,338,075	$7,306,898	$1,747,734	$40,197,196	$115,557,638
Rate / KWH	0.090358		0.069531	0.239044	0.080785					0.037000	0.057228
Form 7 1992	$40,891,781		$33,417,666	$1,386,333	$75,695,780	$17,804,489	$13,338,075	$7,306,898	$1,907,504	$40,356,966	$116,052,746
Difference	($346,439)		$696,025	($14,248)	$335,338				$159,770	$159,770	$495,108
Form 7 KWH	456,388,153		470,604,846	5,859,089	932,852,088	440,715,364	372,555,609	224,383,954	48,744,646	1,086,399,573	2,019,251,661
Generated KWH	485,701,636		500,831,457	6,235,414	992,768,507	459,920,540	388,790,568	234,172,359	50,868,805	1,133,752,272	2,126,520,779
					93.96%					95.82%	

proddist.wk4 02/14/95 lag

Figure 5

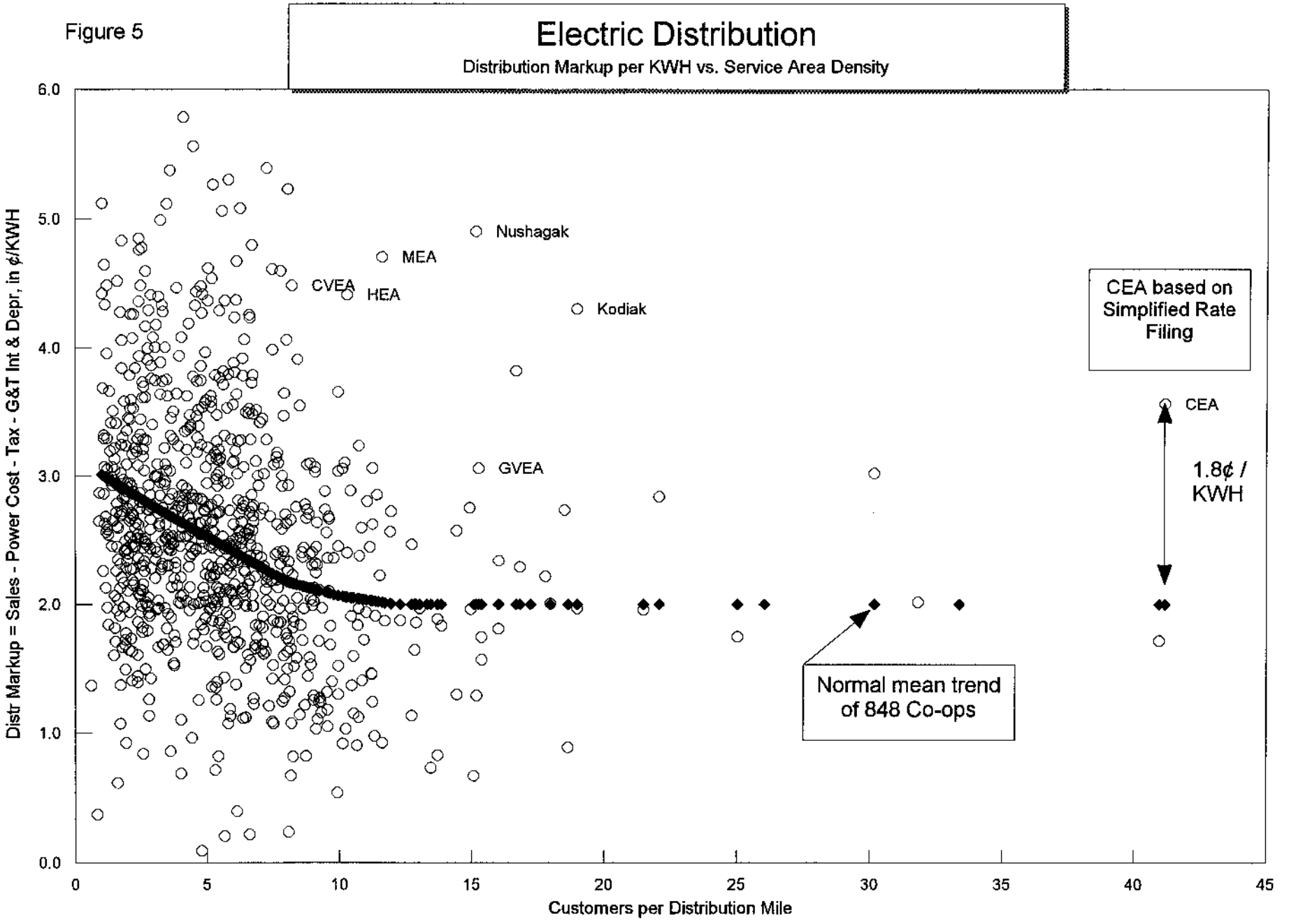

Electric Distribution
Distribution Markup per KWH vs. Service Area Density
Distr Markup = Sales - Power Cost - Tax - G&T Int & Depr, in ¢/KWH
Customers per Distribution Mile
6.0
5.0
4.0
3.0
2.0
1.0
0.0
0
5
10
15
20
25
30
35
40
45
Nushagak
MEA
CVEA
HEA
Kodiak
GVEA
CEA based on Simplified Rate Filing
CEA
1.8¢ / KWH
Normal mean trend of 848 Co-ops

Figure 6

Chugach Electric Association
Preliminary Benchmarking Study Assessment Summary

	Distribution			Generation & Transmission			
	CEA	Average Distribution	Percent Difference	CEA	Average G&T	Percent Difference	Total
Payroll / Cost of Living Assessment:							
Pay per Hour	$27.37	$14.64	87%	$36.50	$19.65	86%	
COLA Pay per Hour	$26.32	$15.64	68%	35.09	$20.70	70%	
Straight Time Hours / employee	1986	2116		1986	1931		
Overtime Hours / employee	140	105	34%	140	97	45%	
Overtime Percent	7.1%	5.0%		7.1%	5.0%		
Productivity Assessment:							
Total Hours / employee	2126	2221	-4%	2126	2028	5%	
Number of employees	273			134			
Total Hours worked	579,830			285,588			
Predicted number of hours	501,056			285,588			
Deviation from norm in hours	78,774			0			
Deviation from norm in FTE employee	35			0			
Deviation percent	13.6%			0.0%			

Net Inefficiency Cost:					
Productivity Loss	(1)	$2,160,000		$0	$2,160,000
Excess Pay Rate	(2)	$5,350,000		$4,110,000	$9,460,000
Total Operating Inefficiency		$7,510,000		$4,110,000	$11,620,000
Estimated impact of inefficiencies on Depreciation, and Interest on Long Term Debt:					
Dept & Int Inefficiency		$1,590,000		$5,300,000	$6,890,000
Total Impact		$9,100,000		$9,410,000	$18,510,000
Inefficiency per Retail KWH		$0.00976		$0.00466	$0.01442
Inefficiency per Wholesale KWH				$0.00466	$0.00466
Inefficiency as a percent of the Retail rate per KWH of			$0.08114		17.8%
Inefficiency as a percent of the Wholesale rate per KWH of			$0.03714		12.5%

(1) - Deviation from predicted norm x average hours/employee x pay per hour

(2) - Predicted number of employees x average hours/employee x (CEA-average COLA rate per hour)

Figure 7

ANNUAL EXCESS CHARGES TO RATE PAYERS
AS A RESULT OF APPARENT LABOR OVERPAYMENT AND OVERSTAFFING

	Excess Costs Resulting from Labor Overpayments & Overstaffing					Retail Excess per KWH				Wholesale Excess per KWH			
	Correctable		Non-Correctable		Total								
	Excess Distribution Payroll	Excess G&T Payroll	Estimated Distribution Excess Depreciation, Amort, Interest	Estimated G&T Excess Depreciation, Amort, Interest	Total Excess	Total Excess in ¢ per Retail KWH	Total Annual Cost of Excess Labor Costs to Retail Customers	Retail Rate in ¢ per KWH	Retail Excess as a Percent of Total Cost	Total Excess in ¢ per Wholesale KWH	Total Annual Cost of Excess Labor Costs to Wholesale Customers	Wholesale Rate in ¢ per KWH	Wholesale Excess as a Percent of Total Cost
CEA	$7,510,000	$4,110,000	$5,300,000	$1,590,000	$18,510,000	1.442	$13,450,000	8.114	17.8%	0.466	$5,060,000	3.715	12.5%
MEA	$4,180,000	$0	$1,470,000		$5,650,000	1.361	$5,650,000	9.689	14.1%				
Kodiak	$1,630,000	$690,000	$770,000		$3,090,000	2.716	$3,090,000	14.214	19.1%				
HEA	$4,150,000	$0	$2,000,000		$6,150,000	1.563	$6,150,000	8.951	17.5%				
GVEA	$3,790,000	$1,040,000	$700,000	$1,320,000	$6,850,000	1.362	$6,810,000	9.005	15.1%	0.340	$40,000	6.337	5.4%
Naknek	$240,000	($40,000)	$40,000		$240,000	1.293	$240,000	19.393	6.7%				
Metlakatla	$120,000	($70,000)	($10,000)		$40,000	0.191	$40,000	10.649	1.8%				
Kotzebue	$160,000	$10,000	$50,000		$220,000	1.270	$220,000	18.623	6.8%				
CVEA	$1,230,000	$200,000	$290,000		$1,720,000	3.150	$1,720,000	15.985	19.7%				
Nushagak	$510,000	$280,000	$90,000		$880,000	5.950	$880,000	17.628	33.8%				
AVEC	$660,000	$0	$270,000		$930,000	2.333	$930,000	38.734	6.0%				
Tlingit-Haid	$480,000	$30,000	$100,000		$610,000	5.395	$610,000	28.094	19.2%				
Cordova	$180,000	$50,000	$70,000		$300,000	1.495	$300,000	20.089	7.4%				
	$24,840,000	$6,300,000	$11,140,000	$2,910,000	$45,190,000		$40,090,000				$5,100,000		

Excess labor costs on depreciation, amortization and interest is based on the assumption that overstaffing and overpayments of labor are the same, on a percentage basis, on capital projects as in baseline distribution operations and maintenance labor. Based on 1995 CEA Capital Projects, project labor is estimated to be about 40% of total project costs, assuming 60% of contractor support is labor. The same assumption was used for G&T labor effects on capital projects and resulting effects on depreciation and interest expense.

CEA retail and wholesale cost per KWH, and distribution vs. generation depreciation and interest were derived from the 1992 data used in the March 1993 Simplified Rate Filing.

For other co-ops, depreciation, amortization, and interest assumed to be proportionate to distribution plant and production plant as reported on their 1992 Form 7.

Assumes that distribution is for retail customers only for GVEA.

Figure 8

Matanuska Electric Association & Homer Electric Association
Preliminary Benchmarking Study Assessment Summary

	Matanuska Electric Association			Homer Electric Association		
	MEA	Average Distribution	Percent Difference	HEA	Average Distribution	Percent Difference
Payroll / Cost of Living Assessment:						
Pay per Hour	$23.59	$14.64	61%	$27.26	$14.64	86%
COLA Pay per Hour	$22.54	$15.64	44%	$26.04	$15.64	66%
Straight Time Hours / employee	2304	2116		2220	2116	
Overtime Hours / employee	140	105	33%	33	105	-69%
Overtime Percent	6.1%	5.0%		1.5%	5.0%	
Productivity Assessment:						
Total Hours / employee	2444	2221	10%	2253	2221	1%
Number of employees	144			110		
Total Hours worked	351,920			247,810		
Predicted number of hours	246853			154737		
Deviation from norm in hours	105,067			93,073		
Deviation from norm in FTE employe	47			42		
Deviation percent	29.9%			37.6%		

Net Inefficiency Cost:			
Productivity Loss	(1)	$2,480,000	$2,540,000
Overtime / Payroll	(2)	$1,700,000	$1,610,000
Total Operating Inefficiency		$4,180,000	$4,150,000
Estimated impact of inefficiencies on Depreciation, and Interest on Long Term Debt:			
Dept & Int Inefficiency		$1,470,000	$2,000,000
Total Impact		$5,650,000	$6,150,000
Inefficiency per Retail KWH		$0.01361	$0.01563
Retail Rate per KWH		$0.09689	$0.08951
Inefficiency percent		14.1%	17.5%

(1) - Deviation from predicted norm x average hours/employee x pay per hour
(2) - Predicted number of employees x average hours/employee x (CEA-average COLA rate per hour)