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## How to Cost Out Your Contract! The Mathematics of Collective Bargaining

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# How to Cost Out Your Contract/ The Mathematics of Collective Bargaining

## Introduction

In negotiations, the union proposals and the company proposals won't be the same. This requires a method to estimate and compare the costs of union proposals and company offers. The way to do this is by costing out the contract.

There are good reasons to go through the costing out process:

\*You can make decisions about which benefit demands best meet the needs of your members.

\*You can evaluate the total economic welfare of your membership and make comparisons with other groups of workers.

\*You can evaluate the cost impact on the employer of any set of wage and fringe benefit demands.

\*You help keep bargaining table nonsense to a minimum.

\*You can tell your membership what the new contract is worth in dollar terms.

\*The company will take the union proposal and "cost it out" so advance calculations can keep the company from using its cost figures as a negotiating weapon.

## Data Collection

Long before negotiations begin and throughout the bargaining process, data for costing should be collected. Information on your company can often be found in the business reference section of your public library, college libraries, and in corporate annual reports.

When the union notifies the company of its desire to begin negotiations, it should soon after request the following data "...in order to intelligently negotiate a contract."

1. Total hours worked, and total hours compensated for all represented workers.
2. Projections for the next three years, annually, of total hours worked and total hours compensated for represented workers.
3. Active employment (number of workers who receive pay for work).
4. Average active employment in the last year of the contract and to date for current year.
5. Detailed average labor costs breakdown. Also, a current job classification/wage breakdown showing the number of workers in each classification.
6. Life, medical and dental insurance data (i.e., enrollment by

plan and total enrollment; total premiums paid by plan and total for all plans).

7. For non-represented workforce, average active employment, total hours worked and total hours compensated, detailed breakdown of total payroll costs.

8. Income statements for the last three full years.

9. Current outstanding contracts, including agreement terms and projected delivery dates, and expected contracts over the next three years.

10. Identify any extraordinary, unusual or non-recurring costs/write-offs/income occurring in any of the last three years.

11. Balance sheets for the latest available month and the prior year end.

12. Operating plans, budgets, forecasts or any other documents dealing with projected sales, costs and operating results, together with a list of the major assumptions used in preparing such information.

NOTE: If you ask for numbers 1, 3, 4, 5, and 6 above, you should receive this data. The remaining requests are excellent to have but harder to get.

#### Useful Definitions

**Base Period:** The reference point against which changes in costs are measured (usually the final year of the terminating contract).

**Base Rate:** The wage employees earn for all regularly scheduled straight-time hours. Shift, overtime, incentive, and longevity payments are excluded from the base rate.

**End Loading:** Postponing major portion of a wage increase until the later years of a multiple year contract; provides less take-home pay.

**Fringe Benefit:** Any provision of the collective bargaining agreement which improves the welfare of the bargaining unit member and is provided at a cost to the employer. (For example: vacations, holidays, sick leave, funeral leave, pensions, health insurance, disability insurance, life insurance, overtime, shift premiums, etc.)

#### Differences in Fringe Values:

(a) some fringes have dollar benefits that are directly related to changes in wages (paid vacations and holidays, personal leave, for example).

(b) other fringes are not tied to the employer's pay structure; they have negotiated formulas (pensions, health care, tuition reimbursements, employer provided personal safety equipment, tools, etc., for example).

(c) other fringes can be figured either way; a shift bonus can be a percentage of a worker's wage rate or a flat cents-per-hour amount.

**Front Loading:** Larger portion of the wage increase is paid during the early years of a multi-year agreement; provides more take-home pay for employees.

**Notice Requirements:** The party seeking to reopen (renegotiate) or terminate a labor agreement is required by federal labor law to give the other party 60-days' notice and FMCS and the state or territorial mediation service 30-days' notice. (The notices are 90 and 60 days respectively in the health care industry.)

**Total Compensation:** For costing purposes, consists of direct wages and fringes.

**Weighted Average:** Determined by multiplying the number of employees in each pay bracket by the applicable wage rate, adding the results for each bracket together, and then dividing the final dollar figure by the total number of employees in the bargaining unit. Weighted average is used since most companies have many base wage rate brackets or classifications. Note: the employer may use another measure (arithmetic average, median, or mode) because it shows a higher average wage rate and makes the company look better; however, the weighted average is more representative because the distribution of employees within the pay categories is taken into account.

**Work Year:** Wages of employees are typically paid on the basis of a work year averaging 2080 hours (40 hour week x 52 weeks).

Another concept to be aware of:

**Paid Versus Productive Hours**

Sometimes you will hear an employer talk about "productive hours." Wages/salaries of employees are typically paid on the basis of a work year averaging 2080 hours. Actual hours worked are fewer because of holidays, vacations, coffee and lunch breaks, jury duty, etc. Sometimes, employers will view the time employees spend off the job as nonproductive hours and will not include them when calculating the hourly cost of a fringe benefit. This will inflate the employer's cost. The union should resist any unreasonable number for the sake of good costing. For all our examples, we use the 2080 figure.

**First Steps**

There can be a certain amount of anxiety when confronted with the economics of bargaining but, as you will see, it is really a matter of taking some easy steps after relevant data is supplied by the employer. The arithmetic involved is quick and simple usually requiring only a pencil, paper, and calculator.

In contract bargaining, cost can be reflected in at least three different ways:

1. **Total Annual Cost (TAC):** the total cost to the employer

in a given contract year

2. Annual Average Cost Per Employee (AACPE): the Total Annual Cost divided by the number of employees in the bargaining unit

3. Average Cost Per Hour Worked Per Employee (ACPHWPE) or Average Hourly Cost (AHC): derived by dividing the Annual Average Cost Per Employee by the average number of hours worked per year per bargaining unit member

The most systematic and probably speediest way to cost any given benefit is to determine the Total Annual Cost of the benefit and carry out two divisions -- first by number of employees and then by average number of hours worked.

TASK 1: Estimate the cost/value of a wage proposal

The proposal is for a 5% wage increase in each year of a 2-year contract; there are 300 employees in the bargaining unit. You will want to know what this offer amounts to in dollars. Take the following steps.

Step 1: Calculate the Weighted Average:

Number of people in each wage classification:

55 people @ \$5.75/hour	=	\$316.25
80 people @ \$6.25/hour	=	500.00
25 people @ \$6.75/hour	=	168.75
40 people @ \$7.00/hour	=	280.00
60 people @ \$7.50/hour	=	450.00
40 people @ \$8.00/hour	=	320.00
300		\$2,035.00 (Total wages

pd./hour)

Total Wages Paid Per Hour v Total Employees = Weighted Average Base Rate

\$2,035.00 v 300 = \$6.78 (Weighted Average Base Rate)

Step 2: Calculate Proposed Increase and New Weighted Average, Year 1:

Formula: Weighted Average Base Rate x Percentage of Proposed Increase

\$6.78 x .05 = \$0.34 (first year increase)

New Weighted Average = \$6.78 + \$0.34 = \$7.12 an hour

Total Annual Cost (TAC) to the employer is then calculated by multiplying \$0.34 times the number of bargaining unit employees times 2080 hours (the accepted number of hours in a work year).

TAC= \$0.34 x 300 x 2080 = \$212,160

Step 3: Calculate Proposed Increase and New Weighted Average, Year 2:

The second year wage increase is calculated using the first year hourly base rate of \$7.12 ( $\$6.78 + \$0.34 = \$7.12$ ) and is \$0.36 per hour ( $\$7.12 \times .05 = \$0.36$ ).

It looks like the total wage increase for two years is \$0.70 ( $\$0.34 + \$0.36 = \$0.70$ ); however, since the first year increase is paid again in the second year, it is included in the two-year total. Thus, the combined hourly cost is \$1.04 ( $\$0.34 \times 2 \text{ years} + \$0.36 = \$1.04$ ).

Try it yourself:

The proposal is for 8% in the first year; 3% in the second year of a two-year contract; 200 workers; weighted average base rate is \$11.50 an hour; average number of hours worked is 2080.

TASK 2: Estimate the cost/value of a pension

Use the following:

1. TAC = Total employer contribution to pension plan over the past year.
2. AACPE = TAC  $\div$  Number of employees
3. Average Hourly Cost = AACPE  $\div$  Average number of hours

Relevant data: the employer contribution is \$1,750,000; the number of employees 1000; and the average number of hours worked equals 2080. So:

1. TAC = \$1,750,000
2. AACPE = TAC  $\div$  Number of employees =  $\$1,750,000 \div 1000 = \$1,750$ .
3. Average Hourly Cost = AACPE/average number of hours =  $\$1,750 \div 2080 = \$0.84$

Try it yourself:

There are 1000 employees; average number of hours worked is 2080. The cost of the current pension program is \$1,750,000 per year and from your discussions with the union's pension consultant, your proposals for improving the current plan will increase the cost of the plan by 10%. You want to know the cost of the improvement in cents per hour. Start by figuring 10% of \$1,750,000 to get the new annual cost:  $\$1,750,000 + \$175,000 = \$1,925,000$ . Continue as above:

1. TAC =
2. AACPE = TAC  $\div$  Number of employees =
3. Average Hourly Cost = AACPE  $\div$  Number of hours worked =

TASK 3: Estimate the cost/value of a hospital/medical insurance proposal

The formulas are:

1. TAC = Average monthly premium  $\times$  12 months  $\times$  number of

employees

2.  $AACPE = TAC \div \text{Number of employees}$
3.  $AHC = AACPE \div \text{Average number of hours worked}$

Relevant data: The average monthly premium equals \$135; there are 1000 employees; and the average number of hours worked is 2080.

1.  $TAC = \$135 \times 12 \text{ months} \times 1000 = \$1,620,000$
2.  $AACPE = \$1,620,000 \div 1000 = \$1,620$
3.  $AHC = \$1,620 \div 2080 = \$0.78$

Try it yourself:

Within the past few months a Health Maintenance Organization (HMO) opened in your community. The monthly average premium for medical and hospital coverage is \$125 per month. The monthly premium on your current health insurance program is \$130 per month. Assuming all the cost savings would go into increased wages, how much could wages be increased if your local switched to the cheaper plan? Additional information needed: 950 employees and average hours worked per year is 2080.

Start by doing the calculations for the \$125 per month cost; then for the \$130 per month cost.

TASK 4: Estimate the cost/value of a holiday (or paid leave time) proposal

The basic equations are:

1.  $TAC = \text{total paid holiday hours} \times \text{average hourly wage} \times \text{number of employees}$
2.  $AACPE = TAC \div \text{Number of employees}$
3.  $AHC = AACPE \div \text{Average number of hours worked}$

In this example, there are 10 eight-hour paid holidays; the average hourly wage is \$9.50; there are 1000 employees; and average number of hours worked is 2080.

1.  $TAC = 10 \times 8 \text{ hours} \times 1,000 \text{ employees} \times \$9.50 = \$760,000$
2.  $AACPE = \$760,000 \div 1,000 = \$760.00$
3.  $AHC = \$760 \div 2080 = \$0.36$

Try it yourself:

You currently have 10 holidays and your local would like to negotiate one additional holiday per year. What is the cost of this proposal in cents per hour? The average hourly wage is \$10.00; there are 750 members; and average hours worked per year are 2080.

TASK 5: Estimate the Cost/Value of a Vacation Proposal

What is the cost of a fifth week of vacation for all employees who have completed 20 years of service? You will need to know the number of prospective beneficiaries of this contract improvement.

That can be found by examining a list of employees and their hiring dates.

In this case, 22 employees are eligible for the extra 40 vacation hours during the first year of the new agreement; the weighted average hourly rate is \$10.53. The total number of employees is 95; average hours worked are 2080.

The calculations would be:

$TAC = \$10.53 \times 22 \text{ beneficiaries} \times 40 \text{ hours of benefit} = \$9,266.40.$

Next, divide total cost by total annual hours for the bargaining unit:

$95 \times 2080 = 197,600 \text{ (total annual hours)}$   
 $\$9,266.40 \div 197,600 = .047 \text{ or } 4.7 \text{ cents}$

Note: The weighted average wage for the 22 affected employees would have been more representative to use.

Try it yourself:

Listed below is the basic data regarding the vacation program contained in your current contract. Figure out the cost of this contract provision in cents per hour. Assume each employee works an average of 2080 hours per year.

Vacation Time	Number of Employees	Average Hourly Wage
1 week (40 hours)	23	7.00
2 weeks (80 hours)	85	8.10
3 weeks (120 hours)	35	8.65
4 weeks (160 hours)	10	9.50

TASK 6: Estimate the cost/value of benefits applicable to a portion of the membership

General Formula:

1. Figure the cents per hour cost of the benefit as though all of the membership receive it.

2. Multiply the above cents per hour cost figure by the percent of employees who do receive this benefit.

For example, to calculate the cost of 10% night shift premium with an average hourly wage of \$9.50; and 15% of employees receiving shift premium, you would proceed to calculate:

1. Cost Per Hour if 100% Received Premium =  $\$9.50 \times 10\% = \$0.95$

2. Actual Cost =  $\$0.95 \times 0.15 = \$0.143$

Try it yourself:

Your local would like to negotiate a 20-day paid leave for members who must be absent from work for childbirth. What is the cost of this proposal in cents per hour? Additional information needed:



Cost of One Paid Leave Day Per Employee = \$0.02 per Hour Worked  
 Number of Members in Bargaining Unit = 100  
 Expected Number of Members Absent for Reason of Childbirth = 4

Notice: Employers tend to be overly generous when making assumptions about the utilization of benefits.

Try it yourself: Costing out a wage and benefit package proposal  
 The cost/value of the money package is obtained by combining all of the individual pay and fringe items.

Facts:

XYZ Company has 300 people in the OCAW bargaining unit; negotiations are in progress.

The OCAW local union is prepared to make its proposal as follows:

- 1) a one-year contract
- 2) 10% wage increase
- 3) two additional holidays
- 4) \$10 per month increase in the company contribution for medical/hospital insurance
- 5) increased life insurance coverage of \$5,000 per

employee

Current benefits are:

- 1) vacations: average of 2 weeks per employee
- 2) holidays: 8 days
- 3) sick leave: 5 days
- 4) medical/hospital insurance: company pays \$50/month per employee
- 5) life insurance:

Number of Employees Covered	Amount of Coverage Each	Co. Cost per of coverage/month
165	\$25,000	75 cents
135	30,000	85 cents
300		

- 6) pensions: non-contributory (company pays \$35/month per employee)

1. Costing out the wage increase proposal.

The proposal is for a 10% increase. The weighted average rate for the 300 people in the unit is \$6.78 an hour.

Calculate Proposed Increase and New Weighted Average:

$$\$6.78 \times 10\% \text{ increase} = \$0.68$$

$$\text{New Weighted Average} = \$6.78 + \$0.68 = \$7.46/\text{hour}$$

2. Costing out the additional holidays proposal (2 additional days, from 8 to 10)

The method for costing out additional days uses this formula:

STEP 1:

Weighted Average Wage x Hours Worked x No. of Holidays =  
Annual Cost Per Employee

STEP 2:

Annual Cost Per Employee v Annual Hours Paid = Cents-Per-Hour  
Cost

For our example:

STEP 1: Calculation of Current Cost:

$$\begin{aligned} \$6.78 \times 8 \times 8 &= \$433.92 \\ \$433.92 \div 2080 &= \$0.209 \text{ per hour} \end{aligned}$$

STEP 2: Calculation of New Cost:

$$\begin{aligned} \$7.46 \times 8 \times 10 &= \$596.80 \text{ per employee} \\ \$596.80 \div 2080 &= \$0.287 \text{ per hour} \end{aligned}$$

STEP 3: Calculation of Increase:

Increase per employee =  $\$596.80 - \$433.92 = \$162.88$  per  
year

$$\begin{aligned} \text{Increase per hour} &= \$162.88 \div 2080 = \$0.078 \\ &\text{or} \\ & \$0.287 - \$0.209 = \$0.078 \end{aligned}$$

### 3. Costing out vacation increase proposals

The method for costing out vacations is:

Average Hourly Wage x Hours Worked/Week x Number of Weeks = Annual  
Cost Per Employee

Annual Cost Per Employee v Annual Hours Paid = Cents-Per-Hour Cost

For our example there is no increase proposed, employees receive 2  
weeks of vacation:

STEP 1: Calculation of Current Cost:

$$\begin{aligned} \$6.78 \times 40 \times 2 &= \$542.40 \text{ per employee} \\ \$542.40 \div 2080 &= \$0.261 \text{ per hour} \end{aligned}$$

STEP 2: Calculation of New Cost:

$$\begin{aligned} \$7.46 \times 40 \times 2 &= \$596.80 \text{ per employee} \\ \$596.80 \div 2080 &= \$0.287 \text{ per hour} \end{aligned}$$

STEP 3: Calculation of Increase:

Increase per employee =  $\$596.80 - \$542.40 = \$54.40$ /year  
Increase per hour =  $\$54.40 \div 2080 = \$0.026$

$$\begin{aligned} &\text{or} \\ & \$0.287 - \$0.261 = \$0.026 \end{aligned}$$

## 4. Costing out sick leave proposals

The method for costing out sick leave is:

Average Hourly Wage x Hours Per Day x Number of Days = Annual Cost Per Employee

Annual Cost Per Employee v Average Number of Hours = Cents-Per-Hour Cost

For our example, employees receive 5 sick days per year and no increase is proposed:

STEP 1: Calculation of Current Cost:  
 $\$6.78 \times 8 \times 5 = \$271.20$  per employee  
 $\$271.20 \div 2080 = \$0.130$  per hour

STEP 2: Calculation of New Cost:  
 $\$7.46 \times 8 \times 5 = \$298.40$  per employee  
 $\$298.40 \div 2080 = \$0.143$  per hour

STEP 3: Calculation of Increase:  
 Increase per employee =  $\$298.40 - \$271.20 = \$27.20$ /year  
 Increase per hour =  $\$27.20 \div 2080 = \$0.013$   
 or  $\$0.143 - \$0.130 = \$0.013$

## 5. Costing out increases to life insurance coverage

For our example, the proposal is to increase coverage by \$5,000 for each employee.

STEP 1: Look at current coverage and proposed coverage:

Number of Employees Covered	Amount of Coverage Each	Co. Cost per \$1,000* of Coverage per Month
165	\$25,000	75 cents
135	\$30,000	85 cents
Proposed coverage:		
165	\$30,000	80 cents
135	\$35,000	90 cents

\*The union must usually rely on these figures as furnished by the company in order to calculate this and the cost. In situations like this, the negotiating committee should attempt to verify, through independent sources, that the rate levels are reasonable. The OCAW Research & Education Department can be contacted for this purpose.

STEP 2: It is necessary to calculate a weighted average to arrive at the cost for each employee, using the following formula:  
 Number of Employees in Group x Coverage per Employee/1000 x 12 Months x Cost per Thousand per Month = Total Annual Cost

Total Annual Cost v Total Employees = Annual Cost Per Employee

Annual Cost per Employee v Annual Hours Paid = Cents-Per-Hour Cost

For our example:

Calculation of Current Cost:

$$165 \times \$25,000/1000 \times 12 \times .75 = \$37,125$$

+

$$135 \times \$30,000/1000 \times 12 \times .85 = \$41,310$$

300

\$78,435 Total Annual Cost

$$\$78,435 \div 300 = \$261.45 \text{ Annual Cost Per Employee}$$

$$\$261.45 \div 2080 = \$0.125 \text{ per hour}$$

Calculation of New Cost:

$$165 \times \$30,000/1000 \times 12 \times .80 = \$47,520$$

+

$$135 \times \$35,000/1000 \times 12 \times .90 = \$51,030$$

300

\$98,550 Total Annual Cost

$$\$98,550 \div 300 = \$328.50 \text{ Annual Cost Per Employee}$$

$$\$328.50 \div 2080 = \$0.158 \text{ per hour}$$

Calculation of Increase:

$$\text{Increase per employee} = \$328.50 - \$261.45 = \$67.05/\text{year}$$

$$\text{Increase per hour} = \$67.05 \div 2,080 = \$0.032$$

$$\text{or } \$0.158 - \$0.126 = \$0.032$$

#### 6. Costing out increases in medical/hospital insurance

The method for costing out changes in contributions to medical/hospital insurance is:

STEP 1:

Monthly Cost per Employee x 12 months x Number of Employees = Total Annual Cost

STEP 2:

Monthly Cost Per Employee v Monthly Hours Paid (2080 v 12 months)  
= Cents-Per-Hour Cost

For our example, the union has proposed an increase of \$10 per month per employee in company contribution (from \$50 to \$60):

STEP 1: Calculation of Current Cost:

$$\$50 \times 12 \times 300 = \$180,000 \text{ per year}$$

$$\$50 \div 173.3 = \$0.288 \text{ per hour}$$

STEP 2: Calculation of New Cost:

$$\$60 \times 12 \times 300 = \$216,000 \text{ per year}$$

$$\$60 \div 173.3 = \$0.346 \text{ per hour}$$

STEP 3: Calculation of Increase:

$$\text{Increase per year} = \$216,000 - \$180,000 = \$36,000 \text{ in}$$

total

$$\begin{aligned} \text{Increase per hour} &= \$10 \div 173.3 = \$0.058 \\ \text{or } & \$0.346 - \$0.288 = \$0.058 \end{aligned}$$

## 7. Costing out a pension proposal

### Method:

STEP 1: Calculate Annual Cost Per Employee

Monthly Cost x 12 months = Annual Cost Per Employee

STEP 2: Calculate Total Annual Cost

Annual Cost Per Employee x Total Number of Employees = Total Annual Cost

STEP 3: Calculate Cents-Per-Hour Cost

Monthly Cost Per Employee  $\div$  Monthly Hours Paid = Cents-Per-Hour Cost

For this example:

The union has not proposed any increase in the pension benefit; however, the company claims that the proposed wage increase would cause their payment into the pension fund to increase from \$35/month to \$40/month for each employee due to effect of wage increase on pension formula. (Note: the union has to rely on cost figures furnished by the company. See comment in life insurance section.)

STEP 4: Calculation of Current Cost:

$$\$35 \div 173.3 = \$0.202/\text{hour}$$

STEP 5: Calculation of New Cost:

$$\$40 \div 173.3 = \$0.231/\text{hour}$$

STEP 6: Calculate Increase per Hour

$$\$5 \div 173.3 = \$0.029$$

### SUMMARY

#### WAGE AND BENEFIT PACKAGE

(Stated in \$ per hour)

	Current Cost	New Cost	Amount of Increase	Percent Increase
Wages	\$6.780	\$7.460	\$0.680	10%
Vacations	0.261	0.287	0.026	10%
Holidays	0.209	0.287	0.078	37%
Sick Leave	0.130	0.143	0.013	10%
Medical/Hospital Insurance	0.288	0.346	0.058	20%
Life Insurance	0.126	0.158	0.032	25%
Pension	0.202	0.231	0.029	14%
Total Package	\$7.996	\$8.912	\$0.916	11%