

PART I REVENUE REQUIREMENTS

1.0 INTRODUCTION

Princeton Light and Power Company, Limited ("PLP") applied October 20, 1989 for approval of an overall rate increase of 6.48% effective December 1, 1989. The Application incorporated a rate of return of 16% on common equity and a rate design proposal. The currently approved rate is 14.5%. Subsequently, PLP preferred to forego an interim rate increase effective December 1, 1989. By Order No. G-61-89 the Commission set down the Application for a public hearing to commence February 27, 1990 in Princeton, B.C.

In the meantime, as a result of an interim increase of 6.9% granted by the Commission to PLP's power supplier, West Kootenay Power Ltd. ("WKP"), PLP received Commission approval (Order No. G-72-89) to pass-through an interim increase of 0.1844 cents per kW.h effective January 1, 1990. The Commission received several letters from PLP's customers stating that a public hearing was not necessary. Only one customer indicated an intention to attend the hearing.

PLP engaged Economic and Engineering Services, Inc. ("EES") to prepare its revenue requirement Application and rate design cost of service studies. Revised material requested the rate increase be reduced to 6.18%. A further revision was submitted on January 4, 1990, and as a result of discussions between the Applicant and Commission staff, additional amendments were submitted on January 22, 23, 25 and 29, 1990 respectively. The Commission staff again requested further information in an expanded format and the Applicant provided a response on February 7, 1990 to support and clarify its Application.

No objection to the Rate Application and Rate Design Proposal was expressed by PLP's customers or registered intervenors. As a result the Commission, by Order No. G-18-90 dated February 19, 1990, cancelled the public hearing and ordered a hearing to be conducted in writing, with any further submissions to be filed by March 5, 1990. PLP subsequently updated its rate Application to include the results of a current wage settlement and removal of the projected public hearing costs. The wage settlement resulted in an upward adjustment of the increase sought of approximately \$5,400.

2.0 TEST PERIOD

The utility previously adopted a forward test year concept in support of its applications. In the 1986 hearing a two-year forecast period was used. In the current case the Applicant put forward a test year for the period April 1, 1989 to March 31, 1990. However, the cost of service study performed by EES was based on the historical test period April 1, 1987 to March 31, 1988.

The intent of the 1989/90 test year was primarily forward looking. However, it has become historical since the Applicant preferred not to receive an interim increase effective December 1, 1989. In the process of annualizing and normalizing components of the Application, PLP agreed not to update rate base and sales, and adjusted only foreseeable additional revenue and expenses in 1990/91 such as rate application costs, demand-side management ("DSM") and wages.

The following are major issues which have been considered by the Commission in determining the appropriate rate increase to be awarded to the Applicant.

3.0 RATE BASE

3.1 Plant Additions

A five-year capital budget was presented for a total of approximately \$1.27 million, which would increase the Applicant's rate base by 50%. The allocation for 1989/90 was \$365,000. The major items are a line truck (\$165,000), a service truck (\$40,000) and a revitalization program (\$19,000). The Commission concurs with the proposed plant additions and appreciates that over the five-year period adjustments may be required.

3.2 Deferred Charges

This account includes costs for rate application, computer software and the Power Sense Program. Total rate case cost, excluding public hearing, is estimated at \$21,000. The Applicant must continue to strive to reduce this cost. The Commission urges the Applicant to place less reliance on consultants, especially since the Company's President is taking a more active role in the business as shown by his increased remuneration.

4.0 REVENUE

The sales revenue forecast appears reasonable. Other Income includes forecast revenue from WKP from a contract under which service work is provided to WKP's distribution system in the Princeton-Tulameen area effective April 1, 1989. Commission Order No. G-38-89 dated June 29, 1989 approved the contract. The Commission believes the Applicant should annualize the WKP contract and include a further \$4,000 in Other Income.

5.0 PURCHASED POWER

The Commission accepts PLP's forecasted power purchases in an amount of \$1.374 million.

6.0 OPERATING EXPENSES

6.1 Hearing Costs

Total rate application costs are forecast at \$36,000 of which \$21,000 is estimated to have been incurred to date. The Commission approves, for amortization over 2 years commencing fiscal 1990 as reflected in the Decision schedules, the actual costs incurred up to \$21,000.

6.2 Wages

PLP's total wage provision in 1990/91 was \$339,400 including a 5% general wage increase effective April 1, 1990. In 1988/89 the forecast was \$234,000. The Applicant increased its staff from 5 to 7 while at the same time reducing the average age from 58 to 45. The Commission concurs with this initiative, plus Halco Management which provides the services of President, J. Hall for \$36,000 annually. The Applicant explained that new employees were hired to meet expansion, limit contracting out, exercise closer supervision and provide a succession plan. The Applicant has offset some of the increased costs by providing contract work to WKP.

6.3 Power Sense Program

PLP, in conjunction with WKP, has developed a Power Sense Program to assist its customers in using electrical energy efficiently. The Applicant has proposed that the annual program cost of \$19,500 be included in the cost of service. By a separate Application dated February 16, 1990, PLP requested Commission approval for a new Tariff Schedule R - Energy Management Service. The Commission by Order No. G-21-90 directed the DSM costs to be capitalized and to be amortized commencing in April, 1991. This accounting treatment is consistent with a similar directive relating to a WKP Energy Management Service tariff.

7.0 INCOME TAXES

The Applicant, in its submissions, made over-provision for deferred income taxes of approximately \$14,000. This was corrected in the Applicant's amendment dated January 25, 1990.

8.0 CAPITAL STRUCTURE

The Applicant's actual capital structure and the capital structure adopted for regulatory purposes are significantly different, which in turn has given rise to notional debt. The notional debt represents the difference between actual equity (44.3%) and the deemed equity for regulatory purposes (40%).

8.1 Notional Debt Rate

In its Application dated October 20, 1989 the Applicant adopted a rate equal to its long-term rate of 11.25% for the notional debt. In later revisions this was corrected to the short-term rate of 13.5%, which is consistent with past decisions.

8.2 Return on Common Equity

The Applicant has requested a rate of 16% return on common equity which it believes is reasonable in comparison to its risk profile, although in its Application the Company adopts a return of 14.31% for the test year. On the basis of the evidence provided the Commission believes a return on equity in the range of 14 to 15% is still appropriate and accordingly agrees with the Applicant's forecast.

8.3 Deferred Rate Stabilization Account ("DSF")

The Applicant confirmed that it wishes to cap the DSF account as at March 31, 1990, with the balance as no cost capital. The purpose of this account is to protect the customers and shareholders from the business risk associated with a strike at the Weyerhaeuser Mill. The Commission concurs with this proposal because the fund has now reached its intended limit of \$60,000.

The Applicant suggested (Vol. 1, Section 7) that the balance of the fund should be used to stabilize its actual return on common equity. The Commission is not prepared to approve this request at this time as it appears to detract from the financial incentives to minimize costs.

9.0 CONCLUSION

The adjustments, as discussed above, have been incorporated into the attached decision schedules which indicate that the Applicant requires a rate increase of 5.07% or \$107,800. The Commission approves the above increase to take effect May 1, 1990 subject to timely filing.

PART II RATE DESIGN

1.0 APPLICATION

1.1 PLP's Rate Design Concerns

PLP's Rate Design Application was formulated on a strategy that would provide solutions to the following major concerns:

1. Many customer billings do not meet the cost of producing and collecting them.
2. The Weyerhaeuser saw mill operation (Rate Schedule - Industrial J) contributes revenue in excess of its cost of service, and thereby subsidizes the remaining customer groups. A sudden loss of this industrial would result in potential "rate shock" to other end-users.
3. The inefficient use of energy must be discouraged. DSM should be built into the tariffs so that conservation is rewarded and high consumption customers contribute a fair share of revenue.
4. Revenue increases as a result of WKP's pass-through of power costs, or other approved revenue requirement increases, if applied on an across-the-board basis would further distort the revenue to cost relationship in each rate class.
5. The "ability to pay" of some customer groups should be recognized, in particular pensioners, irrigation customers, and some large commercial customers.

1.2 Summary

PLP's major focus is in two areas:

- o a revenue reallocation among existing rate classes to bring the Weyerhaeuser rate closer to its cost of service, and the application of revenue increases to each rate class to eventually achieve cost based rates.
- o redesign of existing rate structures to take into account DSM and a higher customer fixed charge.

The following sections evaluate the appropriate and fair solutions adopted to meet these concerns. The Applicant began with the gathering of information and the development of an embedded or fully allocated cost of service study. Traditionally this is the starting point for analysis of rate design.

2.0 THE FULLY ALLOCATED COST OF SERVICE ("FACOS") STUDY

The primary purpose of a FACOS study is to apportion the total historical cost of service to the various rate classes in a manner that recognizes causality. The allocation among rate classifications is performed on the basis of class use of capacity, commodity, and customer related facilities. Because there is no single correct rule for making an allocation, judgement is applied; for example, the assignment of joint costs can be performed in a number of ways. The final results are expressed as a breakdown between customer, commodity and demand components, on a unit basis, for each customer group.

PLP's FACOS study was completed by EES in October 1989. It is based on the historical fiscal year of April 1, 1987 to March 31, 1988, instead of a Commission approved test year. Normally the Commission would favour a "tested" year so that expenses had been examined and confirmed. However, the variation in the range of sales and expenses is reasonable and is acceptable for this case.

In this test period a "utility basis" revenue requirement was formulated on actual expenses incurred and return achieved. This revenue requirement (which included operating/maintenance, depreciation and taxes) was then subtracted from actual generated revenue to determine net income. The return on investment was then determined by developing the ratio of net income to rate base (Table No. 1).

2.1 Mechanics

The study was based on the traditional cost causation process using three phases: functionalization, classification and allocation. Functionalization divides costs into major plant accounts, while classification segments costs into the elements of customer, energy and demand. Finally, the allocation process assigns each of the preceding elements into the appropriate rate class.

2.2 Changes

Contributions in Aid of Construction ("CIAC")

Customer contributions to extension lines or CIAC are included in the Applicant's capital structure as no cost capital. The formulation of the cost of service study requires that this amount be deducted from rate base to gain a more realistic appraisal of the rate base impact by each customer class.

Excluding CIAC decreases rate base by \$368,301 and increases the overall return on rate base from 9.378% to 11.28% (Table No. 1). The majority of the amount is removed from the Residential (\$288,045), Commercial (\$18,005), and Irrigation (\$44,429) classes. The effect of the resulting revenue/cost ratios in Table No. 2, is an increase to ratios developed for these three classes and a more correct interpretation of the FACOS Study.

2.3 Results

Table No. 2 breaks down the results of the study for each rate class into customer, commodity and demand components.

Customer Costs

These are operating and capital costs which vary with the number of customers regardless of power consumption. They include metering and billing costs along with other non-recoverable expenses the utility incurs in taking on an additional customer. The lowest cost is in the Residential sector at \$10.43 to \$10.68 per customer per month and the highest is the Industrial group at \$41.83 to \$45.39 per customer per month. In the absence of competing objectives such as value of service these customer costs would most effectively be recovered in fixed billings to customers.

Energy Costs

These costs vary with changes in the amount of energy consumed. The Commercial and Industrial customer classifications had energy costs in the range of 1.65¢ to 1.84¢/kW.h. Street Lighting resulted in the highest level at 4.02¢/kW.h.

Demand Costs

This category of costs includes depreciation, property taxes, return on investment and a substantial portion of operating and maintenance expenses. These costs would be recovered as fixed costs. The highest level of demand costs (\$6.35/KW) are in the Irrigation class.

2.4 Validity of Results

In the Applicant's opinion the study is assumed to remain valid, "until the 1992/1993 (fiscal) year or further". (BCUC Information Request Section B 1.0, p.6). However, the results are to be reviewed and adjusted each year.

2.5 Rate of Return Differentials by Class

The FACOS study assumes that the overall rate of return is applicable to each rate class and that the investment risk of serving each customer class is identical. However, an investor would consider there to be a risk difference and therefore a cost of capital difference between classes.

Investors are concerned with the stability and predictability of a company's earnings. The stability of earnings is equated to risk. To an investor the completely riskless environment is one in which future earnings are absolutely known. Otherwise, the investor's required return increases proportionately with the level of risk perceived in making an investment.

Considering the variability of income, the Lighting class would present the least risk while the Industrial class would offer the highest. The remaining classes would fall somewhere between these two extremes. The Residential class would be considered in the lower range reflecting the stability of earnings resulting from the diversity of sources of household income, and the lack of competition from alternative energy forms. At the opposite end of the risk spectrum would be Weyerhaeuser. A strike, plant closure, partial plant shutdown or the availability of alternative energy sources could potentially interrupt forecasted revenue, resulting in higher business risk level to the Applicant.

2.6 Summary and Conclusions

With the exception of including CIAC in rate base, the FACOS study was performed in a reasonable manner. However, it must be kept in mind that there is no single correct method of making an allocation and results reflect judgements and the application of allocation methods.

Therefore, unit costs reflect the 1987/1988 fiscal period with built-in assumptions and approximations. These results may be distorted over time by capital expenditures for plant additions as well as the method of assigning "approved" rate increases on a unit or percentage basis. A review each year is considered advisable especially when a significant capital expenditure occurs, such as the Missezula Lake customer extension (estimated \$900,000). The Commission believes that the resultant unit costs will provide a good indication of fair rate allocations for about three years.

3.0 REVENUE REALLOCATION

3.1 PLP's Proposal

It is PLP's proposal that the proportion of revenue in each class should approximate the revenue ratios as developed in the FACOS study. In this way revenue would match allocated cost and cost based rates would be established. However, although revenues of each class should generally recover their full cost of service and trend toward a value of unity, this criterion should be tempered by other factors such as "ability to pay".

If a balance were achieved between revenue and cost gradually over a staged plan, called the "Ten Stage Plan", the loss of the largest contributor to revenue, Weyerhaeuser, would not cause an unbearable revenue increase to other customers (mainly Residential and Commercial) remaining on the system.

3.2 Weyerhaeuser

PLP submitted that with this customer over-contributing to its cost of service as calculated by PLP, the risk of a significant rate increase threatens every remaining customer on the PLP system that potentially must make-up the revenue shortfall. The Deferred Stabilization Fund ("DSF") established with Commission Order No. G-45-88 (April 26, 1988) in the amount of \$60,000 provides a buffer to any potential rate shock. This deferred account could be eliminated entirely as a reallocation of revenue would provide the necessary rate stability.

According to PLP's FACOS study, as shown in Table No. 3, the saw mill (Industrial J) contributed approximately 33.95% of the total revenue in the 1987/1988 fiscal period. It is PLP's position that the revenue exposure would be reduced by moving revenues closer to costs so that the overall revenue contribution would drop to about 28.21%. PLP states this adjustment will significantly lower the future rate shock risk to other customers if the Weyerhaeuser plant is closed down permanently or partially shut down for any extended period of time.

PLP purchases power from WKP under Rate Schedule 40 in which billing demand is based on 75% of the maximum demand recorded during the previous eleven months. Therefore, this is an outstanding cost which must be reflected in rates in the 11 month period following a shut down when Weyerhaeuser is no longer on the system. Since the mill contributes approximately 36% (February, 1988) of the single month coincident peak, this charge (amounting to about \$127,000) would be passed on to the remaining customers. An additional revenue contribution would be sought from these customers to compensate for the lost revenue.

The combination of these two components would require an 18.94% increase in overall revenue to compensate for the loss of Weyerhaeuser in the first year to ensure the company is not affected. However, in the following year the revenue level will fall by 8% due to the reduced billing demand charges from WKP (Table No. 9). If needed, additional revenue smoothing could be implemented by the Commission to shift part of the first year increase to subsequent years assuming relief was not forthcoming from WKP.

3.3 Revenue Reallocation Stage One

The Stage One revenue shift or reallocation proposed by PLP is composed of two components.

1. A revenue requirement increase of 6.18% which is allocated to rate classes to respond to an immediate lowering of the Weyerhaeuser rate (Industrial J).
2. Rate restructuring which in itself produces a different revenue total and depends in part upon a customer's response to the perceived changes in his energy bill. (See Section 4.0 for details.)

With reference to Table No. 4, Column F, it is evident that there is no consistent pattern of revenue increases applied to each rate class. In a typical application of an approved revenue requirement increase, each rate class would rise by a similar amount or in this case 6.18%. This is not the procedure that is applied in the application of Stage One presented here as the increases are affected principally by rate restructuring and the constraint that no increase be imposed on Weyerhaeuser. The percentage variation in rates ranges from a decline of 2.49% in the Irrigation group to a 35.55% rise for the Commercial M class.

The results in Column G consider another view of these revenue shifts when the average increase of 6.18% is taken away from the percentage revenue movement in Column F. The results illustrate the variation from the more typical across the board increase that is usually applied.

Considering these calculations as an indicator, Industrial D-2, Industrial J (Weyerhaeuser), Street Lighting, and the Irrigation class have actually experienced a decrease in revenue requirement or rates while all other classes have had a rate increase. However, with these two separate functions superimposed it is difficult to identify the Applicant's logic.

An examination of the individual rate classes reveals the following information:

1. Residential (Schedules A and B combined)

The Residential, Commercial, and Industrial J rate classes contribute 92% (Table No. 4) of the total generated revenue. If it is assumed the Commercial C and Industrial J class revenues are at their maximum levels, the Residential group must experience a revenue increase. As the current revenue/cost ratio of this class, as calculated by PLP, is about 83% (Table No. 5) an increase is justified on a cost basis.

This proposed schedule is the result of an amalgamation of the Residential General Service rate (Schedule A) and the Electric Heating rate (Schedule B). Currently, approximately 59% of revenue is from the first category and 41% from the latter. The "ability to pay" is presently not a constraint nor are other competing energy sources. However, current minimum billings do not cover the cost of producing and collecting them and the minimum charge is proposed to be increased to offset these costs. Considering that 56% of Residential customers use less than 800 kW.h/month, the impact of the proposed rate on Schedule A customers is about 11% while Schedule B end-users will experience an increase of approximately 9% (Exhibit 13-1a).

This proposed increase in the fixed customer charge will partially meet the costs of reading meters, billing, and customer collections. In conjunction with this proposal the Applicant proposes to introduce bi-monthly billing, to reduce administrative costs, and budget billing for the Residential class that will maintain a steady cash flow through all seasons of the year.

2. Commercial (Schedule C)

The Applicant's proposed Schedule C is the result of combining the current Schedules C, K and L. Schedule K applies to only two customers and was originally intended for private club rooms. Currently four Commercial accounts are on Schedule L namely the ice rink, hospital, grocery store.

Although cost-based rates would indicate a reduction is appropriate as the revenue/cost ratio is about 138.59% (Table No. 3, Column C), the Applicant intends to implement the amalgamation of rates and increase the minimum billing charges before moving Schedule C to the position where revenue matches cost. This is intended to allow time for customers to react to the new rate structure.

3. Commercial (Schedule M)

The Applicant believes that the existing rate structure does not allow for an easy combination with Schedule C at this time. The revenue/cost ratio is about 84.4% (Table No. 3) which suggests that a rate increase to recover costs is appropriate. The Applicant has raised the energy rate by 3% and increased the minimum charge. A demand charge is added to be consistent with Schedule C. The result is that the overall class revenue from 17 customers rises by \$5,430 (Table No. 4, Columns A & C) to a level of \$20,706.

4. Industrial (Schedules D and D-2)

This schedule is available for motors used in manufacturing processes where the minimum demand is not less than 6 kVA. Those customers who receive

primary voltage are designated Schedule D-2.

Revenues are proposed to be increased by 10.14% and 5.16% respectively (Table No. 4) and the revenue/cost ratios are expected to be about 95.23% and 97.07% respectively (Table No. 5).

5. Industrial (Schedule J - Weyerhaeuser)

The Applicant has not applied for a rate increase (Table No. 4, Column F) to this customer in Stage One and this action lowers the revenue to cost ratio from the current 119.47% (Table No. 3, Column C). The revenue contribution would then drop from 33.76% to 31.79% (Table No. 4).

6. Street Lighting (Schedule E)

The Street Lighting schedule applies to high pressure sodium vapour and mercury vapour lighting. The introduction of metered street lights as a result of the "Town Revitalization" project will probably result in more revenue than projected from this class and move the revenue/cost ratio from 80.47 closer to unity (Table No. 4, Column B).

7. Lease Lights (Schedule F) - Private Outdoor Lighting

PLP is proposing to close this schedule to new customers effective with this Commission Decision. The present accounts are to be grandfathered until such time as the customer discontinues service. The increase in overall revenue of 18.25% (Table No. 10, Stage One) is just enough to bring existing customers up to the WKP approved rate.

8. Irrigation (Schedule G)

Considering Table No. 4, Column G, this class is allocated a rate decrease even though its revenue/cost ratio indicates a value of only 49.00% (Table No. 3).

This is a significant under-contribution to cost. However, the Applicant proposes to introduce a new rate structure to this customer group, one which avoids the previous connection and reconnection problems and resulting charges. With power available all year round the Applicant estimates that most customers in this class will probably use considerably more power at a time when loads are very low and it is an advantage to the utility. The resulting revenue increase is estimated by the Applicant to be approximately 6% per year even though total revenue projections at present appear to show a decrease (Table No. 4).

3.4 Ten Stage Plan

The Ten Stage Plan is based on achieving the ideal revenue proportions which are very close to those determined by the FACOS study (Table No. 8). Two classes deviate from this objective. The Lease Lighting schedule is proposed to be closed and the Applicant applies "ability to pay" criterion to the Irrigation schedule.

Revenue from each rate class is increased gradually at different growth rates but in equal period increments to achieve the results shown in Table No. 6. In a compressed form, Table No. 7 shows present rates as a percentage of overall revenue in each case, Column A, and the PLP target in Column D. As costs are assumed to increase at the average growth rate for each classification, it is the Applicant's opinion that essentially cost based rates will result and in the final stage the revenue/cost ratio ideally will be 100% for all but two classes (Lease Lighting and Irrigation).

The Commercial, Industrial and the Irrigation rate classes have a decreasing proportion of overall revenue while all other classes maintain a steady growth rate. The Residential class experiences the largest growth at 9.71% over 10 stages and the Commercial (C), the greatest drop of 5.99% over the same period. The contribution from Weyerhaeuser declines by 5.61% (Table No. 7).

The Applicant proposes a ten stage plan with additional adjustments occurring if the cost of power changes. The objective is gradualism. PLP expects to achieve these targets in approximately five years . Conceivably more than one stage could be applied each year and a rate class such as residential may experience greater than a 10% increase per year.

3.5 Summary and Conclusions

3.5.1.1 Cost Based Rates

The Commission disagrees with the suggestion that cost of service forms the only standard against which the reasonableness of rates can be assessed. If this were the case, there would be no need for the just, reasonable and not unduly discriminatory standard, which is expressly provided by the Utilities Commission Act ("the Act"). Pursuant to Section 65 of the Act, it is a question of fact, of which the Commission is the sole judge, whether a rate is unjust or unreasonable. Although the Commission believes cost of service forms the initial measure of reasonableness against which rates should be assessed, a number of other factors are relevant, some of which may conflict with the cost of service standard. These are:

- effectiveness in yielding sufficient revenue under the fair return regulatory standards;
- relative rate and revenue stability from year to year;
- fairness in apportionment of the total cost of service among customer classes over time;
- avoidance of unduly discriminatory or unduly preferential rates for service;
- economically efficient control of services supplied and used;
- simplicity and administrative ease of the rate form.

These objectives can be compressed into three primary criteria. Rates should:

- (i) cover the total cost-of-service including a fair return to capital in order to ensure the continued production of the utility service.
- (ii) apportion costs fairly, without arbitrariness and without undue discrimination.
- (iii) encourage justified use of the resource and discourage wasteful use having regard to all costs used in the production of the service.

3.5.1.2 PLP's Rate Design in View of Objectives

1. Meeting the Annual Revenue Requirement

Meeting the annual revenue requirement is an obvious goal of PLP's Application. The intention is not to change the revenue level, but to apply revenue allocation percentages over a ten stage period that will result in matching the cost proportions (except for two classes) as established in the FACOS study. Although the contribution of revenue from each class will change, the overall level will be set with a revenue requirement hearing.

2. Revenue Stability

Stability refers to prices that do not change frequently. When revenue shifts do occur within or among classes they are accomplished gradually. PLP intends to apply gradualism by shifting revenue over a ten stage program, thereby reducing the impact of each shift. Although there is no limit to the amount of the intra or inter class shifts, these sums are dependent on the overall revenue requirement increase so that the growth in rates to each class are within reasonable limits.

3. Fairness in the Apportionment of Total Cost of Service Among Classes

No generally accepted definition of fairness exists against which rates can be assessed. However, cost is frequently used as a measure of fairness with the understanding that a price is considered fair if it is equal to the cost of service. Therefore, using revenue/cost ratios for the various classes and achieving unity would imply the optimum fair rate level had been attained. However, applying this rationale assumes the cost of service generates only one appropriate ratio for each customer classification and fairness is the only objective to be met. In reality, judgement is a significant factor in the assignment of costs, especially joint costs. The application of alternative allocation methods leads to different revenue/cost ratios and a number of reasonable results. Therefore a range of rates can be assumed to be fair.

Considering the element of risk between classes (as described in Section 2.5), although not easily quantified, places an added degree of uncertainty within the results which must be considered when designing rates. Therefore, basing rates exclusively on revenue/cost ratios is to set rates within a zone of possible results.

The Applicant is applying a percentage of overall revenue based on the formula that revenue should equal cost. Vigorously applying this equation ignores the market realities that exist. Since cost allocation procedures in general, and those used in this FACOS study, incorporate decisions and opinions the results must be considered only as a guide to reasonableness.

As shifts in costs occur gradually over time, it is important that periodic updates of the study be planned. The Commission finds it reasonable that the Applicant intends to update the FACOS study every year so those assessments can be made.

4. Discrimination

Discrimination arises as a result of different prices and terms of service being applied to the same class of customer or the cross subsidization among rate schedules when prices do not reflect a reasonable level of cost. Economic criteria (as described in the following section) are the principal means of determination as opposed to strict accounting standards and the reliance on revenue/cost ratios.

5. Economic Efficiency

Economic efficiency requires that price be set equal to marginal cost thus resulting in a proper allocation of resources. When price equals marginal cost only those willing to pay the full cost of producing the service will be served. Under these conditions, justified use is promoted and wasteful use is discouraged.

PLP has not attempted to develop a marginal cost study and has relied exclusively on the cost of service study information to design rates. A complete picture of future cost movement and appropriate rate levels would be better achieved if a marginal cost study was developed to compliment the existing cost information.

6. Ease of Understanding the Rate Form

The rate form should be easily understood by the customer so that the price is known at the time the service is available. As well, the administration of the tariff should be cost effective so that unnecessarily cumbersome administrative tasks are avoided.

As described in Section 4.0 PLP has simplified the rate structure for the Residential class and consolidated some Commercial tariffs to lower administration costs and improve understanding.

3.5.1.3 Examination of Individual Rate Classes

Rate design, of course, is based on the ranking of objectives and it is PLP's position that fairness is the predominant aim. If the revenue/cost ratios move towards unity in each rate class, the impact of the loss of Weyerhaeuser's revenue is minimized to the remaining customers. However, as previously considered, fairness is only one of many factors that must be weighted and the Commission has evaluated each class on the many objectives previously outlined, inclusive of class risk.

1. Residential

It is commonplace in the industry that the Residential class maintains a revenue/cost ratio of about 90%. The variance from unity allows for the recognition of alternative cost allocation methods, a conservative estimation of errors in the FACOS study and a recognition that the large number of customers equates to a stable revenue base resulting in lower business risk. With the ratio currently about 84% an increase in rates meets the criteria of the fairness principle.

A second factor that must be taken into account is system upgrading and reinforcement. The Residential and Commercial classes will be responsible for the majority of capital expenditures over the next three years. These incremental costs will be rolled into the overall average costs and shared by existing customers. Therefore, it is appropriate that rates and costs move closer together to reflect the current and future reality. Failure to address increasing future costs will only serve to distort the revenue/cost rate further and require a greater increase in rates at some point to alleviate cross subsidization and the potential for undue discrimination between rate classes.

Gradualism too is an element which should be taken into account when increasing the revenue contribution from this class. PLP has expressed the view that a 10% increase is the maximum threshold the class should experience at any one time a revenue increase is implemented. The Commission agrees with that proposal.

2. Commercial/Industrial

The Commercial and Industrial classes often over-contribute to the cost of service based on the rationale that the operating expenses can be factored into the product price so that the ultimate purchaser of goods or services shares in the energy price increase. When the business fails to be competitive, however, the margin can no longer be passed on.

The Commercial C class is currently significantly over-contributing but this is supported to some extent by business risk. The Applicant should evaluate the rate levels in each of the classes (C & M) to ascertain if product sales or service is being reduced.

3. Weyerhaeuser

Weyerhaeuser (Industrial J) is considered the driving force for the revenue shift in Stage Ten. In the Applicant's judgement the utility and its customers are at risk as the loss of this one customer would result in significant rate increases to the remaining customers, especially in the Residential sector. By adopting a strategy that results in a gradual redistribution of revenue, so that revenue matches cost, the potential of rate shock occurring to the Residential class is substantially reduced.

To implement this proposal the Applicant is assuming the results of the FACOS study have some scientific validity rather than acknowledging that the application of judgements and conventional accounting practices incorporated into the analysis may have impacts. The ratios should be viewed as a reasonable approximation of cost relationships and serve as a guide of past experience. However, capital expenditures and expenses can change dramatically when a potential ten-year time horizon is considered and it is unrealistic to weight this information too highly with that time frame under review.

In general it is not unusual for an industrial revenue cost ratio to be above one when business risk is taken into account. Industrial customers, with operating characteristics similar to Weyerhaeuser, would impose the highest risk on the system relative to other customer groups. Assimilating all these factors a revenue/cost ratio in the range of 110% as shown in stage 3, Table 10 is considered fair, just and reasonable.

4. Lease/Street Lighting

Both Lighting rate schedules are presently not meeting full fixed costs. The Applicant has applied to close the Lease Lighting tariff to new customers to limit further losses.

5. Irrigation

The Applicant has applied the criterion "ability to pay" as the justification for a rate which is significantly below cost, thereby introducing a social factor into the rate design objectives. The contention is that rates should depend, in part, on the wealth and income status of the rate payers.

Although the rate is covering variable cost it is not covering full fixed costs. It is important that this group be aware of the revenue shortfall even though they may not currently be able to bear the full share of cost based rates.

3.5.1.4 Conclusions

The Commission believes that the first three stages of the ten stage plan will move rates in the correct direction considering market realities, rate design objectives, and the present relationship of revenue to cost in each class. The gradual progression over this period allows customers time to react to the new rate structures and the overall rate impacts will be relatively low. The cost of service can be reasonably expected to grow, as shown in Table 10, with a probable bias toward the Residential class. An average 7% increase in overall revenue for stages two and three causes a 9-10% increase in this class.

Considering that the FACOS study was based on the 1987/88 fiscal year, the Commission finds that the first three stages of the Ten Stage Plan the maximum time horizon acceptable. Future pass-throughs and revenue requirement increases at 7% or below will be allocated to each rate class on the basis of the revenue allocations established in the first three stages of Table No. 6. Increases above these levels will require an updated FACOS and further justification by the Applicant based on the existing market realities and rate design objectives.

At the end of this three stage period the Applicant should have formulated a rate restructuring proposal for the Commercial and Industrial Tariffs and updated the FACOS Study. At that time, considering market conditions, rate design goals and cost of service parameters, the Applicant may submit a second proposal outlining further rate shifts.

To compliment this information it is recommended that a marginal cost of service study be developed. A long-run incremental cost study is an aid in planning intra class rate design and inter class revenue responsibility. It will serve as well as an invaluable tool to effectively engage the DSM program.

4.0 RATE STRUCTURE

4.1 Individual Rate Schedule Details

The essential features of the eight rate schedules are itemized below. The major emphasis is an adequate cost recovery from low consumption users to meet customer costs and sufficient coverage of demand charges imposed by the current West Kootenay Power Ltd. tariff. Residential, Commercial and Industrial (D-1 and D-2) schedules have been consolidated to recognize the customer similarities in each class and simplify the administration of each tariff.

1. Residential

- Residential class schedules A & B are to be combined.
- A \$12.00 minimum basic service charge per billing period or \$6.00 per month offsets current billing and collection costs.
- The declining block rate is replaced by a flat energy charge.
- Demand charge of \$2.00/KVA for over 15 KVA demand per billing period.
- Bi-monthly billing will reduce customer collection costs.
- Budget billing to stabilize cash flow.

2. Commercial (Schedule C)

- Minimum and basic service charge of \$12.00 for one phase and \$13.80 for 3 phase.
- Schedules K and L are to be combined with Schedule C.
- Primary power clause added to Schedule C to accommodate customers in Schedules K and L that have transformers and receive primary voltage.

3. Commercial (Schedule M)

- Minimum charge raised to \$12.00/month that is consistent with Schedule C.

- 0 Demand charge of \$2.00/KVA per month.
- 4. Industrial D-1 and D-2
 - 0 Rate structure is maintained.
 - 0 Minimum charge is increased.
 - 0 Clause D-2 is added to Industrial D to allow customers who receive primary voltage access to the Schedule.
- 5. Industrial (Schedule J) - Weyerhaeuser
 - 0 Rate structure is maintained.
- 6. Street Light (Schedule E)
 - 0 Minimum charge added.
 - 0 All references to Fluorescent lamps have been deleted.
 - 0 Reference to High Pressure Sodium Vapour Lighting is included.
 - 0 Schedule now to be available for the Town of Princeton, Department of Highways, and East Princeton Waterworks District.
- 7. Private Outdoor Lighting (Schedule F)
 - 0 To be closed with Commission Decision approval.
 - 0 Schedule to apply as long as no interruption of service occurs after which tariff is no longer available.
- 8. Irrigation (Schedule G)
 - 0 Meters to be left on year round at a rate of \$12.00 per billing period (2 months).
 - 0 Flat energy charge per kW.h.
 - 0 Energy rate is capped by a maximum rate based on horsepower of connected load. The maximum monthly rate for each service is \$14.40/month/H.P. of connected load.

4.2 Demand-Side Management ("DSM")

PLP has purchased WKP's "Power Sense" program that included the necessary material to promote DSM. The Applicant is now in the process of adapting this strategy to the special circumstances of its franchise area.

This initiative is not something entirely new as PLP has been active in energy conservation, a component of the DSM program, for some time. This influence is evident in the tariff design, as well, to encourage efficiency and discourage wasteful use of energy. Currently, programs in the areas of cogeneration and energy conservation are actively under consideration. The revisiting of rate design objectives at the end of the third stage will allow the future rate shifts to be compatible with conservation and DSM objectives to price electricity so as to induce efficient use.

4.3 Conclusions

The Commission approves the rate structuring as set out in detail in Section 4.1. The changes in the present tariffs are a positive sign that the Applicant is working closely with its customers to respond to changing use patterns and customers are being given the correct pricing signals. However, this development can be further enhanced with the formulation of a marginal cost study. Further work is recommended in the Commercial and Industrial classes. Lease Lighting (Schedule F) is closed effective with this Decision.

The implementation of the DSM program is to be encouraged and the Commission looks forward to innovative proposals from the Applicant that will control power purchase costs.

The Commission directs that the Applicant file Rate Schedules incorporating the 5.07% rate increase that will be effective May 1, 1990.

DATED at the City of Vancouver, in the Province of British
Columbia, this day of April, 1990.

J.D.V. NEWLANDS, Deputy Chairman

W.M. SWANSON, Q.C., Commissioner

TABLE NO. 1

1. Revenue Requirement for FACOS Study
(with "Contributions in Aid of Construction")

Rate Revenues	\$1,988,658
Allocated Revenue Requirement	<u>1,784,285</u>
Net Income	\$204,373
Rate Base	\$2,180,552
Return on Investment	9.378%

2. Revenue Requirement for FACOS Study
(without "Contributions in Aid of Construction")

Rate Revenues	\$1,988,658
Allocated Revenue Requirement	<u>1,784,285</u>
Net Income	\$204,373
Rate Base	\$1,812,161
Return on Investment	11.28%

3. Differences

Contributions in Aid of Construction removed from Rate Base	\$368,391
Return on Investment increased by	1.90%

TABLE NO. 2

Princeton Light and Power Company, Limited
Development of Average Unit Costs
(Utility Basis)

	Res. <u>A</u>	Res. <u>B</u>	Comm. <u>C</u>	Comm. <u>M</u>	Indust. D Secondary	Indust. D Primary	Indust. Primary <u>J</u>
(2)							
Demand							
\$/Kw Annual			3.52	4.75	3.70	3.81	3.73
Energy							
- ¢/Kwh							
- Annual	3.09	2.898	1.78	1.838	1.841	1.684	1.645
Customer							
- \$/Month	\$10.68	\$10.43	\$17.92	\$18.44	\$45.39	\$43.27	\$41.83
Revenue Cost (1)							
	76.62	89.89	140.35	86.45	95.23	97.07	120.37
Revenue Cost (2)							
	77.67	90.93	138.59	84.44	93.50	96.09	119.47

NOTE

- (1) Cost includes CIAC (Contributions in Aid of Construction)
- (2) Cost excludes CIAC

TABLE NO. 3
Revenue Ratios and Revenue/Cost Ratios developed from
FACOS

<u>Class of Service</u>	<u>A</u> Revenues (Cost of Service)	<u>B</u> Revenue Ratio	<u>C</u> * Revenue Cost Ratio	<u>D</u> Princeton Ideal Revenue Ratio	
Residential - Schedule A	\$427,575	21.50%	77.67%	29.48%	
					43.17%
Residential - Schedule B	270,067	13.58	90.93	15.90	
Commercial - Schedule C	442,032	22.23	138.59	16.02	
Commercial - Schedule M	17,137	0.86	84.44	1.04	
Industrial - Schedule D	60,621	3.05	93.50	2.97	
					4.06%
Industrial - Schedule D-2	16,668	0.84	96.09	0.80	
Industrial - Schedule J	675,186	33.95	119.47	28.15	
Street Lights - Schedule E	18,850	0.95	80.47	1.13	
Lease Lights - Schedule F	17,195	0.86	40.24	1.12	
Irrigation - Schedule G	43,327	2.18	49.00	3.39	
TOTAL	\$1,988,658				

*NOTE: The Ideal Revenue to Cost Ratio determined when excluding "Contributions in Aid of Construction" from Report on the Effects of "Contributions in Aid of Construction on Rate Base Class

TABLE NO. 4
"Stage One"
Revenue Increase

COLUMN	A	B	C	D	E	
CALCULATION YEAR	1989/90		1990/91		(C-A)	
<u>Class of Service</u>	<u>Revenues (Present Rates)</u>	<u>Revenue Ratio</u>	<u>Revenues (Proposed Rates)</u>	<u>Revenue Ratio</u>	<u>\$ Change</u>	9
Residential - Schedule A	\$451,370	21.25%	\$496,215	22.00%	\$44,845	
Residential - Schedule B	\$305,348	14.42%	\$330,969	14.67%	\$24,621	
Commercial - Schedule C	\$467,534	22.01%	\$513,786	22.78%	\$46,252	
Commercial - Schedule M	\$15,276	0.72%	\$20,706	0.92%	\$5,430	
Industrial - Schedule D	\$64,462	3.03%	\$71,000	3.15%	\$6,538	
Industrial - Schedule D-2	\$17,115	0.81%	\$17,998	0.80%	\$883	
Industrial - Schedule J	\$717,169	33.76%	\$717,169	31.79%	\$0	
Street Lights - Schedule E	\$18,279	0.86%	\$18,827	0.83%	\$548	
Lease Lights - Schedule F	\$18,540	0.87%	\$21,923	0.97%	\$3,383	
Irrigation - Schedule G	\$48,234	2.27%	\$47,035	2.09%	(\$1,199)	
TOTAL	2,124,327		\$2,255,628		\$131,301	

TABLE NO. 5

"Stage One"
Revenue & Revenue/Cost Ratios

	1989/90 Present Rates	% of Revenue	* Revenue/ Cost Ratio	% Change In Rates	Stage One Revenue At Proposed Rate:
Residential	\$757,718	35.67%	83.70%	9.17%	\$827,201
Commercial - Schedule C	\$467,534	22.01%	137.23	9.89%	\$513,773
Commercial - Schedule M	\$15,276	0.72%	70.45%	35.55%	\$20,707
Industrial - Schedule D & D-2	\$81,577	3.84%	92.92%	9.10%	\$89,001
Industrial - Schedule J	\$717,169	33.76%	118.80%	0.00%	\$717,169
Street Lights - Schedule E	\$18,279	0.86%	73.05%	3.00%	\$18,827
Lease Lights - Schedule F	\$18,540	0.87%	40.62%	18.25%	\$21,924
Irrigation - Schedule G	\$48,234	2.27%	51.07%	-2.49%	\$47,033
TOTAL	\$2,124,327	100.00%			\$2,255,634
% REVENUE INCREASE					6.18%

* **NOTE:** Costs for each class exclude "Contributions in Aid of Construction" ; overall revenue increase.

TABLE NO. 7

"Ten Stage Plan"
Percentage of Total Revenue

COLUMN	A	B	C	D	
	% of Revenue Present Rates	Change in Percentage taking place each stage % Growth	Percentage each stage % Reduction	Princeton target Final Stage %	% (Pre to —(A
Residential	35.67	.97		45.38	
Commercial C	22.01		.75	16.02	
Commercial M	.72	.01		1.04	
Industrial D & D2	3.84		.02	2.97	
Industrial J	33.76		.4	28.15	
Street Lights E	.86	.03		1.13	
Lease Lights F	.87	.02		1.12	
Irrigation G	2.27	.15		3.39	

TABLE NO. 8

"Ten Stage Plan"
Percent of Revenue Targets for Ten Stage Plan

	% Ideal Ratios <u>from FACOS</u>	% Princeton Target <u>Ratios</u>
Residential	43.17	45.38
Commercial C	15.84	16.02
Commercial M	1.00	1.04
Industrial D	3.20	2.97
Industrial D2	.86	.80
Industrial J	28.21	28.15
Street Lights E	1.13	1.13
Lease Lights F	2.04	1.12
Irrigation G	4.55	3.39

IN THE MATTER OF
the Utilities Commission Act
S.B.C. 1980, c. 60, as amended

and

IN THE MATTER OF
an Application by
Princeton Light and Power Company, Limited

DECISION

April 12, 1990

Before:

J.D.V. Newlands, Deputy Chairman
W.M. Swanson, Q.C., Commissioner

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ORDER NO. G-27-90

SCHEDULES

I	Utility Income and Earned Return for the Year Ending March 31, 1990
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