FINAL REPORT

RATE DESIGN TASK FORCE

FEBRUARY 20, 1992

Dear Reader:

Members of the Rate Design Task Force extend gratitude and appreciation to Puget Sound Power & Light Company, the Washington State Office of the Attorney General, and the Washington Utilities and Transportation Commission for providing the framework and motivation for residential ratepayers to participate in the electric utility rate process.

The process provided a challenge and opportunity to Task Force members. The process provided a special kinship between energy provider, energy regulator, and energy consumer, reflecting a true spirit of cooperation.

Puget Sound Power & Light Company organized the Task Force, having no assurance of the outcome. Thus, there was risk involved. The Task Force acknowledges this risk and lauds the people of Puget Sound Power & Light Company accordingly. Similarly, people of the Attorney General's Office and the Washington Utilities and Transportation Commission were very supportive, receptive, and cooperative. The Task Force acknowledges and is grateful for the assistance provided.

I profusely thank each and every member of the Rate Design Task Force--managers, senior executives, economists, scientists, real estate agents, accountants, homemakers, craftsmen, educators, engineers, commercial property managers, and much more. More importantly, these people are your neighbors and each is a residential ratepayer.

Each has given his or her wisdom, energy, and time to the greater good--each a "point of light" in our society.

Respectfully,

James A. Young
Chairperson
Rate Design Task Force

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Introduction

The purpose of this report is to convey to Puget Power and the Rate Design Collaborative Group the views and recommendations of the Rate Design Task Force. This report is divided into sections reflecting "Background," "Process," "Executive Summary," "Recommendations," "Concerns and Comments," "Minority Reports," "Lessons Learned," "Credits," and "References."

Background

Puget Sound Power & Light Company, with encouragement of the Washington Utilities and Transportation Commission (WUTC), developed and organized a cooperative process, including a Rate Design Collaborative Group with a Technical Collaborative subset and a Rate Design Task Force, the former composed of the full spectrum of consumers, and the latter composed of residential ratepayers. Functionally, the Rate Design Task Force serves as a resource to the Rate Design Collaborative Group as well as an advisory group to Puget Power. The Collaborative and Task Force efforts culminate in April 1992 in a Rate Design Filing with the Washington Utilities and Transportation Commission.

The unique features of the April 1992 filing are as follows:

1. The filing will not be a revenue requirements case. The overall level of money the Company is authorized to recover through rates will not be discussed.

2. The Rate Design Collaborative is to respond to the changes being made to the rate-making process and the Commission order decoupling revenues from sales.

The Rate Design Task Force Charter

The Rate Design Task Force will prepare recommendations on Rate Spread and Rate Design (residential as a minimum) to Puget Power and the Collaborative by February 1992.

Guiding Principles[1]

The recommendations should conform with the following principles:

1. The rates can be made understandable to the customer.
2. Receipts should cover allowed revenue under expected conditions.
3. Changes in rate design, up to a clean slate, are acceptable.
4. Experimental rates may be appropriate.
5. There will be limits to future frequent rate changes.
6. Rates should be both predictable and consistent in design and application.
7. There shall be consideration of energy and appropriate natural resources.
8. "Rate shock" should be avoided for any class of customer or any individual customer.
9. "Gradualism" shall be applied to the implementation of any rate change.
10. All rates should be just, equitable, and sufficient.

Task Force Process

The Rate Design Task Force was formed on October 9, 1992, and the following people, volunteers from the residential sector, devoted time and energy to the process and the product:

Marguerite Abrahanson
Robert Afflerbach
Connie Ball
Steven Benham
Willard Brown
Andre Cailliet
Elmer Clausen
Betty Corey
Fred Dullanty
Frank Fahland
Mac Gardiner
Charles Gibson
Ted Ginsburg
Michael Guthrie
Lawrence Hall
Hil Hornung
Karen Lorberau
Dorothy McGuire
Wendi Meador
Tricia Moore
Dan Morin
Allan Noyes
Al Pieper
Dave Plummer
Bertan Roundy
Pete Sandvigen
George Snyder
Kenneth Thomas
John Wolch
James Young

[1]Selectively adapted from the No. 1 Summary Report of the Collaborative Group September 20, 1991, entitled *II Guiding Principles.*

The following people served as officers:

Robert Afflerbach	Chair, Rate Spread Task Team
Betty Corey	Chair, Rate Design Task Team, Other
Mac Gardiner	Chair, Report Format
Hil Homung	Chair, Rate Design Task Team, Residential
Wendi Meador	Vice Chair, Task Force
Kenneth Thomas	Media/Publicity
James Young	Chair, Task Force

The following Puget Power people served as advisors:

Jim Heidell
David Hoff
Colleen Lynch

The Rate Design Task Force met first on October 9, 1991, and devoted this meeting and the five following meetings to the process of familiarization and education. Then the Task Force divided into "Task Teams" (subgroups) in order to focus on Rate Spread, Rate Design (Residential), and Rate Design (Industrial/Commercial/Other). Each Task Team formulated "Recommendations" and "Concerns and Comments" in light of the guiding principles and the charter. The entire Rate Design Task Force then met in consideration of Task Team recommendations, concerns and comments, and formulated the submission herein.

Executive Summary of Recommendations

The Rate Design Task Force developed the following recommendations:

General

- **Residential Ratepayer Advisory Group**

  Puget Power, under counsel of the Washington Utilities and Transportation Commission (WUTC) and the Washington State Office of Attorney General, or the WUTC and/or the Washington State Office of Attorney General should establish and maintain a Residential Ratepayer Advisory Group.

- **Reduced Expenses Incentive**

  Washington Utilities and Transportation Commission, Washington Office of the Attorney General, and Puget Power should aggressively pursue reducing electrical power rates through incentives which give rise to expense reduction.

Rate Spread

- **Fair Share Costing**

  Each user should pay a fair share of electrical power based on a WUTC-approved cost of service to the user's classification.

- **Cost Recovery of Conservation**

  The conservation program planned for accomplishment during calendar year 1992 will require an investment agreed between WUTC and PSP&L for facilities and equipment. If the goals of the program are achieved, the incentive revenues will be sufficient to cover costs and will result in an increase in revenue for Puget Power. Failure to achieve the goals will result in a loss of revenue.

  Should revenue losses result or insufficient revenue result from the program, Puget will be required to recover this loss by subsequent billings to the consumers. This recovery should be accomplished in a fair and equitable manner, one which will recover from the consumers in the manner in which they, the consumers, benefit from the conservation obtained.

- **Gradualism**

  The change in rates which will result from the fair share costing recommendation requiring each consumer classification to pay the full cost of service as determined by the WUTC, should be made gradually over a reasonable period such as two years or more, depending on the amount of rate increase, to mitigate rate shock and increase acceptability with those experiencing an increased rate.

- **Sharing of Low-Cost Energy (e.g., Hydro)**

  Fair share of low-cost energy (e.g., hydro) should be spread between all consumer classes (i.e., Residential, Commercial, Industrial, etc.) and allocated by power consumption. Each class should receive a proportion of the low-cost energy benefits equal to its percentage share of Puget Power total power sales, based upon receipts.

- **No Low-Income Rate**

  No low-income rate should be established.

- **Centralized Low-Income Utilities Credit System**

  The Washington Utilities and Transportation Commission and Public Counsel should pursue a centralized low-income utilities credit system. Such a system should be developed based upon results of a carefully designed pilot program.

Rate Design, Residential

- **Model Residential Rate Design**

  Design a rate structure based on resource category.

  a. A Base Charge based upon pro-rata allocation of fixed costs experienced by Puget Power.
  b. A 1st Block Rate based upon pro-rata allocation of low-cost energy (e.g., hydro).
  c. A 2nd Block Rate (Tail Block) based upon pro rata allocation of thermally-generated and contingency-purchased energy.

- **Home Energy Rating System**

  Puget Power should add to its voluntary home energy audit a system of rating homes according to their relative energy efficiency on a scale of, e.g., one to five stars.

- **Interruptible Rates/Time-of-Use Rates**

  a. Puget Power should examine methods to provide residential customers the option of taking water heaters "off line" (possibly space heaters) during periods of peak demand times and provide incentives for this action.
  b. Puget Power should examine methods to give time-of-use rates for customers who choose to participate in a credit or incentive program to control power load when needed.
  c. Puget Power should treat voluntary "shed" or "curtailed" power as an energy resource and provide incentives accordingly.
  d. Puget Power should pursue a pilot program to further examine the opportunities.

  As a minimum, Puget Power should ask a broad representation of consumers whether interest and/or willingness to participate will give rise to further consideration.

Rate Design, Commercial/Industrial/Other

- **Conservation**

  The current commercial and industrial rate structures do not appear to encourage conservation. The current residential rate structure is intended to encourage conservation through its inverted rates. All users of a limited resource should contribute toward conservation. The provision of that limited resource has an impact on the environment which is a cost to the entire community.

  If the residential rate design structure continues to emphasize conservation, then we propose that industrial/commercial rate designs/structures do the same. The following four proposals are framed to accomplish this purpose.

- **Inverted Tail Block Rate**

  Create a tail block rate for heavy industry, e.g., 90% of prior year's usage at existing rate schedule; any additional usage at a premium rate or create a credit system to encourage a reduction in usage.

- **Large New Power Requirement Lead Time**

  Industry would be required to notify Puget Power of large new blocks of energy with a lead time of five years, or pay higher than the standard rates for others in the same rate group. Once time passes, allowing Puget Power appropriate planning and new resource acquisition, rates would revert to the standard rate.

- **Hookup Fee**

  Impose an elevated per-kilowatt hook-up fee for all new connections to be reduced according to those cost-effective conservation measures which are implemented.

- **Rate Classification**

  Break the existing Commercial/Industrial rate class into multiple segments, e.g.:
  (1) "Ma & Pa" -- up to 5,000 kwh/month.
  (2) Less than 50,000 kwh/month.
  (3) Greater than (or equal to) 50,000 kwh/month with demand

Recommendations

General

A. Recommendation Title: **Residential Ratepayer Advisory Group**

1. Recommendation Statement
   Puget Power, under counsel of the Washington Utilities and Transportation Commission (WUTC) and the Washington State Office of Attorney General, or the WUTC and/or the Washington State Office of Attorney General should establish and maintain a Residential Ratepayer Advisory Group.[2]

2. Purpose of Recommendation
   a. Provide a forum to speak in behalf of the residential electric power consumer.[3]
   b. Develop a well-informed group of individuals within this forum to provide the basis for a balanced view of residential consumer interests and utility considerations.

3. Supporting Rationale
   There exists no organized, enduring, well-informed forum composed of a cross section of residential consumers to serve in an advisory capacity on electric power rate issues (to include conservation) in order to become a source of information for the WUTC and Office of Attorney General as well as Puget Power planners and policy-makers.

   Existing avenues for residential ratepayer opinion include ad-hoc testimony at organized hearings and the Puget Power Consumer Panel process. Neither provides an enduring, organized well-informed forum in behalf of residential consumers, although the residential consumer encompasses approximately half of Puget Power's electricity consumption and a little over half of its revenue. The largest proportion of the remaining half of the consumers is represented by well-organized special interest groups. This gives rise to the need for a well-informed standing forum to speak specifically in behalf of residential consumers.

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[2] A priori, such a concept should extend to all utilities at the behest of the utility or WUTC as appropriate.
[3] Ibid.

"Well informed" is the key phrase in this rationale. The complex nature of rate design and the related issues of conservation, equity, government regulations, and cost allocation methods, to name a few, require extensive knowledge and education in order to make an intelligent contribution on behalf of residential customers. The only way to develop such a knowledge base is through the creation and maintenance of a standing advisory group.

4. Implementation

Such a group should:

a. Represent a reasonable cross section of the residential consumers.
b. Provide for gradual turnover in membership so as not to deplete the knowledge base or evolve into group-think mentality.
c. Not be based upon remuneration as incentive.
d. Be structured to avoid excessive influence of either the utility, WUTC, Attorney General Counsel, or special interest groups.
e. Enjoy autonomy in expression.
f. Have ready access to residential consumer opinion, needs, and preferences regarding electrical power.
g. Have ready access to information from Puget Power, government, and other sources.

B. Recommendation Title: **Reduced Expenses Incentive**

1. Recommendation Statement

Washington Utilities and Transportation Commission, Washington Office of the Attorney General, and Puget Power should aggressively pursue reducing electrical power rates through incentives which give rise to expense reduction.

2. Purpose of Recommendation

The purpose of this recommendation is to redirect a "rates will increase" mentality, particularly in light of decoupling and attendant incentives for conservation (at a rate increase per kwh) to a "rates can and will be reduced" mentality.

3. Supporting Rationale

Puget Power revenues are based upon a relatively fixed earnings margin, notwithstanding conservation incentives following decoupling. Thus, if the aggregate of costs in delivering electrical power increases, rates ultimately increase and earnings remain relatively constant. If the aggregate of costs in delivering electrical power decreases, rates ultimately decrease

and earnings remain relatively constant. This relationship fosters a lack of incentive to promote reduction in expenses beyond that of Least Cost Planning; e.g., administration, management procedures, operational procedures, technology, etc. The existing process provides only short-term (between rate cases) motivation for reducing expenses and associated rates.

WUTC should develop an incentive program to provide present and continuing reward to Puget Power for initiatives that result in expense reduction. For example, suppose a Puget Power management initiative provides for consumer meter reading in a particular customer class or subclass resulting in a reduction of expenses. In this scenario, the individual consumer reads his meter on an agreed-upon date, uses a simple lookup table to determine amount due, completes a pre-coded computer compatible form with meter reading mark-in and amount enclosed mark-in. The form is sent to Puget Power along with payment. Savings could result from eliminating labor-intense practices, further automation in payment processing and eliminating the time lag between meter reading, billing, and payment due date. Other examples (relative to meter reading expenses) include estimates such as the billing basis with periodic adjustments or cooperative meter readings between gas and electric providers. An incentive scenario could allow Puget Power an ongoing incentive equal to 25% of the savings and allow the remaining 75% be applied to a general rate reduction, or as a rate reduction only to those participating. As long as the measure resulted in savings, the incentive distributions would continue accordingly.

This process would:

a. Allow Puget Power earnings to actually grow -- based upon profit incentives.
b. Provide a benefit to ratepayers as well as an intrinsic incentive to ratepayers to be part of new initiatives.
c. Provide an opportunity for stockholders to realize increase in earnings.

This process could:

a. Target labor-intensive and other cost-intensive areas.
b. Use industry averages or specific advances/achievements to evaluate program savings and success.

The present system does not provide such benefits. In fact, the existing system implicitly discourages initiative in this regard, particularly initiative with a degree of risk.

An aggressive expense reduction incentive program logically would include goals and individual employee rewards for implemented and effective initiatives.

Rate Spread

A. Recommendation Title: **Fair Share Costing**

1. Recommendation Statement
   Each user should pay a fair share of electrical power based on a WUTC-approved cost of service to the user's classification.[4]

2. Purpose of Recommendation
   To develop a full sharing of the cost-of-service requirements providing power to the entire service area.

3. Supporting Rationale
   Since many factors are involved in delivering electrical power to each specific user, such as resource used, type of power delivered (voltage), distribution costs, etc. the cost of providing that power should include all the costs involved in that specific delivery. This cost-of-service data used to establish the billings generated should be the latest data established by Puget Power for purposes of rate review with the Utilities Commission.

   Note: John P. Dessauer, world-renowned investment officer, writing in the World Monitor, stated, "A decision on financial matters made for political considerations instead of economic consideration is a poor decision."

B. Recommendation Title: **Cost Recovery of Conservation**

1. Recommendation Statement
   The conservation program planned for accomplishment during calendar year 1992 will require an investment agreed between WUTC and PSP&L for facilities and equipment. If the goals of the program are achieved, the incentive revenues will be sufficient to cover costs and will result in an increase in revenue for Puget Power. Failure to achieve the goals will result in a loss of revenue.

   Should revenue losses result or insufficient revenue result from the program, Puget will be required to recover this loss by subsequent billings to the consumers. This recovery should be accomplished in a fair and equi-

[4] Such a WUTC-approved cost of service for user classifications is pivotal toward equity and fairness among and within user classifications. Once the WUTC provides a cost-of-service basis and in light of Recommendation C (Gradualism) below, the Commission should implement rates reflecting its approved cost-of-service methodology.

table manner, one which will recover from the consumers in the manner in which they, the consumers, benefit from the conservation obtained.

2. Purpose of Recommendation
When implementing any new procedure, such as conservation, any resultant increases or decreases in rate should be absorbed by all of the consumers affected by the process.

3. Supporting Rationale
Power generated by conservation -- that is, power saved by the consumers, can be made available to other consumers, both new customers and old ones alike. This, then, is a resource created by Puget and its customers in accordance with good business practice and to meet the guidelines of the Washington Utilities and Transportation Commission. Since this will expand the list of customers that Puget will service, normally Puget would be adding to its revenues collected and contributing to its profits. However, in this case the additional power supplied will merely bring the same revenues as before the conservation occurred. There is no incentive for Puget to engage in this effort and certainly no incentive to promote this program which may cost it additional efforts and expenses. Under the pending agreement with the WUTC, Puget will be allowed to collect and retain additional revenues. These revenues can be considered as a conservation surcharge. The purpose of this recommendation is to insure that the conservation surcharges are billed to those persons benefiting from the conservation effort -- mainly those to whom conserved power is delivered, rather than all consumers in general. Without this recommendation, conceivably all conservation could be attained by residential consumers but benefit only the commercial or industrial consumers.

The statements above assume that Puget attains the goals of the conservation program as proposed to date. Should Puget fail to attain those goals, it will incur certain expenses and obtain no rights for retaining additional revenues. This, obviously, will require a general increase in rates effective for all consumers alike.

C. Recommendation Title: **Gradualism**

1. Recommendation Statement
The change in rates which will result from the fair share costing recommendation requiring each consumer classification to pay the full cost of service as determined by the WUTC, should be made gradually over a

reasonable period such as two years or more, depending on the amount of rate increase, to mitigate rate shock and increase acceptability with those experiencing an increased rate.[5]

2. Purpose of Recommendation
To avoid rate shock and encourage ready acceptance by the consumer..

3. Supporting Rationale
Currently the residential and industrial customers pay less than their cost of service, while the commercial customers pay an amount exceeding their true cost of service. When a rate increase is put forth by Puget Power and authorized by the Washington Utilities and Transportation Commission, the residential and industrial consumer classifications will find their rates increased, perhaps by a substantial amount. A policy of making that change in rates on a gradual basis would demonstrate fairness and accomplish consent in a much more timely manner. As rates are determined and found to be in need of increase, a general guideline should be followed to determine the extent of gradualism to be used. Depending on the economic factors prevalent at the time, 4% to 5% per year beyond inflation is appropriate until the increase is fully implemented.

D. Recommendation Title: **Sharing of Low-Cost Energy (e.g., Hydro)**

1. Recommendation Statement
Fair share of low-cost energy (e.g., hydro) should be spread between all consumer classes (i.e., Residential, Commercial, Industrial, etc.) and allocated by power consumption. Each class should receive a proportion of the low-cost energy benefits equal to its percentage share of Puget Power total power sales, based upon receipts.

2. Purpose of Recommendation
Equitably spread economic benefits of low-cost power, particularly that generated by hydro, where resources were generally established through public funding, or where public resources are used, such as river water flow. Thus no public sector should be excluded from use of this commodity even when this resource diminishes proportionately in the service area in comparison to other resources.

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[5] See Note 2.

3. Supporting Rationale
Since hydro power generation has been made available by public funding, it should be made available equally to all consumers. Hence residential, commercial, industrial, and other consumers should share this power source in accordance with their needs. Individual rate designs should follow the fair share equity philosophy in specific class rate designs.

E. Recommendation Title: **No Low-Income Rate**

1. Recommendation Statement
No low-income rate should be established.

2. Purpose of Recommendation
To clearly establish the fact that an investor-owned utility should not be considered as a replacement for a government agency when dealing with low-income residential customers or non-profit enterprises.

3. Supporting Rationale
It should be recognized that companies have primary reasons for being in business; for Puget Power, it is to provide reliable, quality, cost-effective service to its customers and to provide a reasonable return to those who invest their money in the company.

The inability of some low-income persons to pay for essential utility services is not confined to the Puget Power service area. It is a state-wide problem and includes more than just electric power. The overall public assistance welfare program is designed to address food, shelter, medical care, and other items, including various sources of heating.

Power assistance programs should be administered through the State social welfare system and paid for out of general fund revenues; or a low-income advocacy organization should manage both public and private funds accordingly. Such programs are not a rate issue. It is up to the voters to see that the responsible State agencies are encouraged to develop appropriate programs and low-income advocates should lobby accordingly.

If a low-income rate were established for Puget Power, similar rates would also be appropriate for all other essential services which would multiply administrative costs for all concerned.

There are some who would argue that special rates for low-income persons is a rate design issue rather than a rate spread issue. However, lost revenue has to be made up by all ratepayers one way or another, so one cannot assume that the issue is confined to residential customers only. Also, if a policy of special rates for low-income persons were established, non-profit enterprises which assist low-income groups may request similar consideration.

F. Recommendation Title: **Centralized Low-Income Utilities Credit System**

1. Recommendation Statement
The Washington Utilities and Transportation Commission and Public Counsel should pursue a centralized low-income utilities credit system. Such a system should be developed based upon results of a carefully designed pilot program.

2. Purpose of Recommendation
To provide an appropriate, effective, and efficient avenue to address low-income energy requirements.

3. Supporting Rationale
The Task Force acknowledges the low-income energy (as well as other utility) problems. The Task Force believes that this problem should not be addressed under singular or ad hoc programs scattered among various utilities. A centrally managed program should eliminate duplicate overhead and administrative costs. The following approach is suggested.

All utility assistance programs should be centrally administered under a state-wide low-income advocacy organization, perhaps along the lines of the Opportunity Council structure. Public Counsel and the WUTC, in cooperation with low-income advocacy organizations, should lobby the Legislature accordingly. Low-income electric energy-related programs do exist. These include (not inclusively):

a. Voluntary ratepayer contributions through the billing process.
b. Federal support though the Low-Income Home Energy Assistance Program (LIHEAP).
c. Washington State Energy Assistance Funds.
d. Utility-subsidized conservation programs.

These and other scattered support programs should be gathered, orchestrated, and weighed against the need -- that is, quantified. For example: what costs are expended by a utility in wrestling with low-income generated fiscal problems; what monies are available; and what monies are needed. The objective of this recommendation is to reduce corporate (and therefore ratepayer) losses and simultaneously provide for deserving low-income people.

Centralization will exploit existing programs. For example, states that have or are working on solutions (such as fuel funds, rate relief, and weatherization programs that assist low-income households, etc.) are rewarded with a larger share of federal funds. Thus, the sum of these programs may prove greater than their parts, with effective oversight and orchestration. Actions would include:

a. Aim programs at exploiting LIHEAP by improving and enhancing local and private programs.
b. Target subsidized conservation programs to low-income households -- perhaps eliminate the consumer share when shown cost effective.
c. Target subsidized conservation to low-income landlords, providing incentives such as those discussed in the Collaborative; e.g., establish significant hook-up fees which diminish as a function of weatherization participation and compliance.
d. Provide stronger emphasis on the ratepayer voluntary contribution programs.
e. Create a credit system for all utilities, including energy, water, etc., which would identify those eligible for decreased payments as a function of income and pay the utility provider in aggregate -- using centrally managed funds.
f. Initially include as part of the credit system fund a contribution by the utility based upon a percentage of increased revenue resulting from the program. This contribution would be phased out as the credit system matures.

Low-income consumers would be billed, showing a credit amount (as provided by a low-income support agency) and a remainder to be paid. The utility would be paid in aggregate for all such credits from the centralized fund. Low-income consumers will more likely pay the lesser amount. Regarding "f" above: the utility (and therefore the ratepayer) would invest into the centralized fund a percentage of revenues (e.g., 75%) recouped from low-income ratepayers that (historically and statistically) would not have otherwise been recouped. Thus, in this example, losses are diminished by 25%. This investment would be reduced and

phased out over time as the program matures -- providing incentive for continued utility involvement.

While this is an attractive scenario and favorable evidence of success exists, Puget Power should first conduct a pilot program in cooperation with Public Counsel, the WUTC, and an organization such as the Opportunity Council. Results of such a pilot program will dictate program expansion as outlined above.

Central to this proposal is that Puget Power (and other utilities) would not determine recipients or credit amounts nor would the utility be required to manage a unique and autonomous program. The utilities would simply provide billing services, and credit payments to the utility would be in aggregate.

In addition, credit recipients, once selected, should be removed from the program once they default (within established guidelines).

Low-income utility need is a state- and utility-wide problem and should be addressed accordingly.

Rate Design, Residential

A. Recommendation Title: **Model Residential Rate Design**

1. Recommendation Statement
   Design a rate structure based upon resource category:

   a. A Base Charge based upon pro-rata allocation of fixed costs experienced by Puget Power.
   b. A 1st Block Rate based upon pro-rata allocation of low-cost energy (e.g., hydro).
   c. A 2nd Block Rate (Tail Block) based upon pro rata allocation of thermally-generated and contingency-purchased energy.

2. Purpose of Recommendation
   Establish a rate structure that reflects resource costs by category and improves the tail block inversion, thus giving rise to conservation and use-limiting incentives.

3. Supporting Rationale
   The following conditions were established for a Model Rate Structure design:

   a. Receipts should cover allowed revenue under expected conditions.
   b. Changes in rate design, up to a clean slate, are acceptable.
   c. Experimental rates may be appropriate.
   d. Rate changes should be kept to a minimum.
   e. Rates should be both predictable and consistent in design and application.

   The current three-tier energy charge, one fixed charge rate structure, applicable to all residential customers, does not meet current and expected customer load profiles within the conditions given above.

   A single, more appropriate fixed charge and the new energy rate charge can come closer to a prediction of expected total costs under similar growth conditions. The low charge for the first block mitigates the higher fixed charge for those using less than 7,200 kwh/year.

   The proposed rate structure is based upon the premise that categories and respective allocations should reflect costs as the primary objective. Any conservation incentive in the resultant higher rate tail block is noted, albeit secondary.

In addition, the higher fixed fee helps recover real service costs of consumers who use the service for short periods; i.e., summers only or winters only each year.

The following represents a suggested target rate structure:

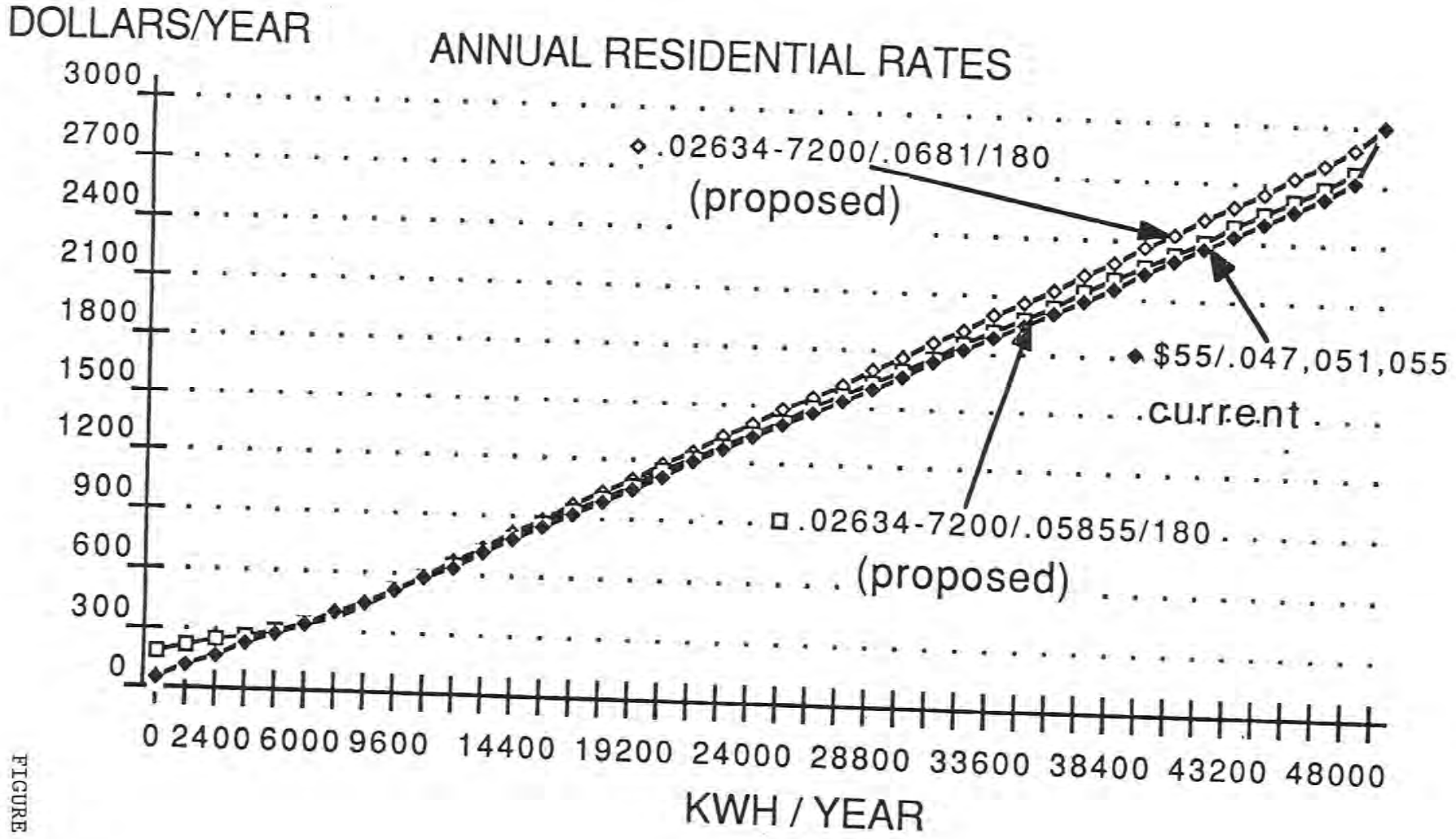
a. Change the current fixed fee to a single, fixed, higher customer service fee. $15/month is suggested, based upon Puget Power data.
b. Change an initial block energy rate to a value approximating the cost of company-owned hydro energy for most current customers. $0.02634/kwh is suggested for the first 600 kwh/month, based upon Puget Power data.
c. Change the remaining energy use rate to a figure which will meet the residential category revenue requirement. $0.0681/kwh is suggested for the winter rate and $0.05855/kwh is suggested for the summer rate, each based upon Puget Power data.

These rates have been annualized to provide a visualization of the customer annual billing (see Figure 1). The scale has been expanded for clarity, showing low-end (Figure 2) and high-end (Figure 3) differences between the current billing and that proposed.

Implementation of this recommendation should reflect gradualism. Accordingly, the base charge, or customer service fee, should be achieved gradually, increasing over time. Similarly, reduction in the 1st Block and 2nd Blocks should be decreased and increased respectively.

The Task Force is aware of the Commission's historic view of basic service fees relative to inclusion of so-called minimum system components (portions of transmission infrastructure).

In addition, the Task Force is aware that the 600 kwh/month estimate will diminish as a function of regional growth. Regarding the 1st and Tail Block rates: PRAM adjustments should focus on the Tail Block to further enhance the conservation incentive.


DOLLARS/YEAR
ANNUAL RESIDENTIAL RATES
3000
2700
2400
2100
1800
1500
1200
900
600
300
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(proposed)
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(proposed)
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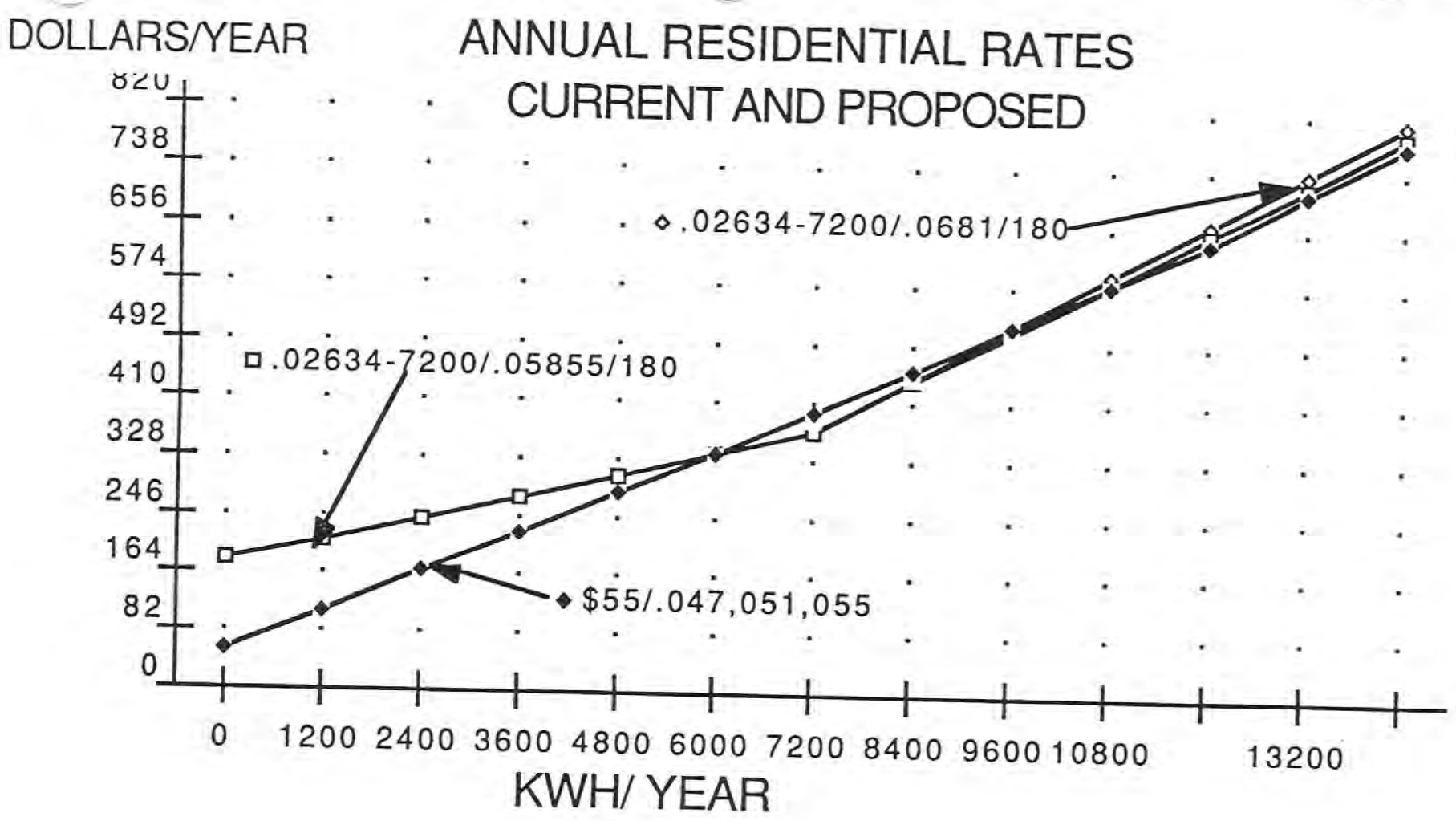
KWH / YEAR

FIGURE 1


DOLLARS/YEAR
ANNUAL RESIDENTIAL RATES
CURRENT AND PROPOSED
820
738
656
574
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3600
4800
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7200
8400
9600
10800
13200
KWH/ YEAR

FIGURE 2

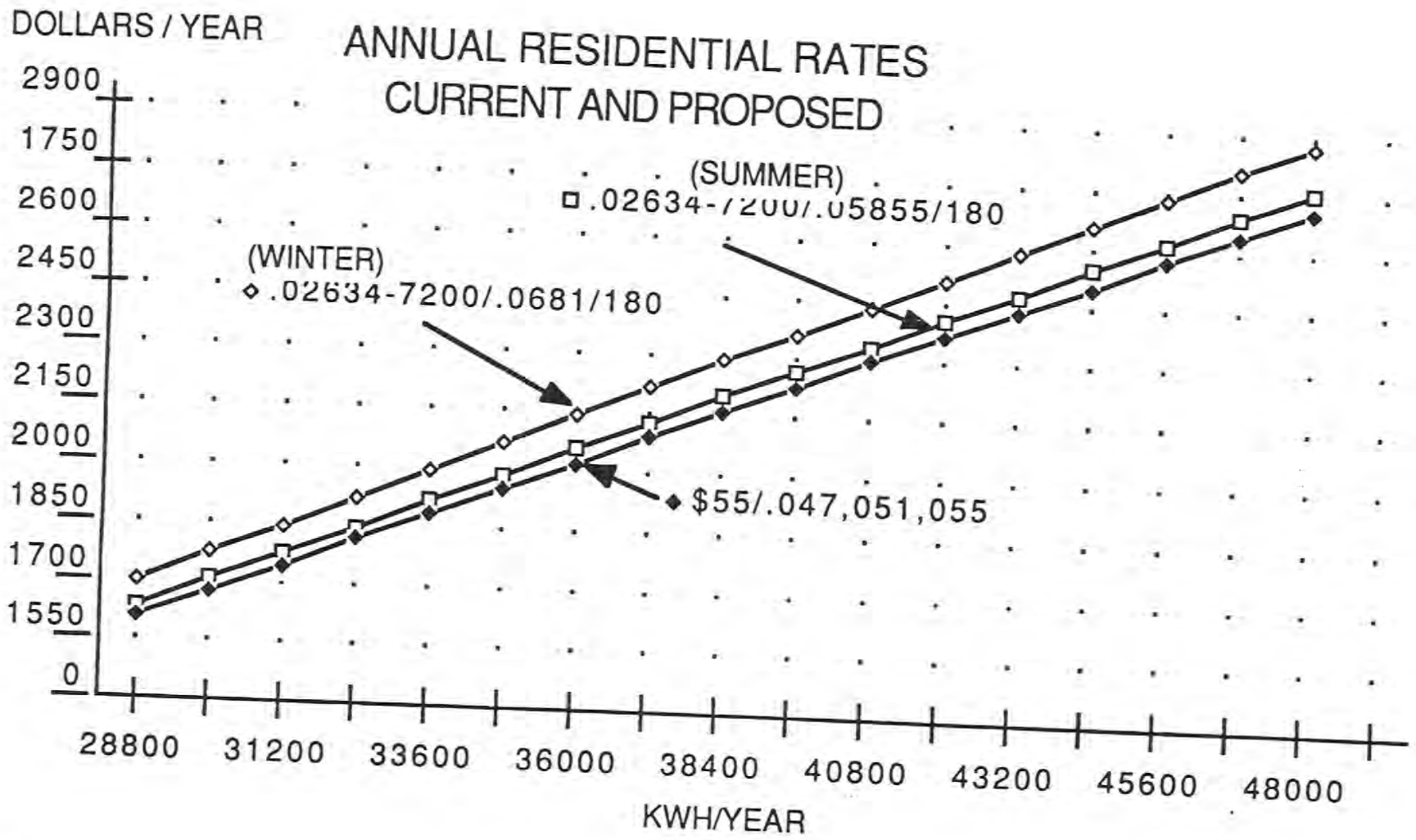
DOLLARS / YEAR
ANNUAL RESIDENTIAL RATES
CURRENT AND PROPOSED
2900
1750
2600
2450
2300
2150
2000
1850
1700
1550
0
(SUMMER)
.02634-7200/.05855/180
(WINTER)
.02634-7200/.0681/180
$55/.047,051,055
28800
31200
33600
36000
38400
40800
43200
45600
48000
KWH/YEAR

FIGURE 3

4. Supporting Analysis

Three sources of information were used for the Analysis:

* Historical data on residential use, from 1979 to 1990, based on scheduled billings.[6]
* Estimates of energy costs.[7]
* Estimate of allocation of residential service costs, based on average user allocation.[8]
* The residential billing for 1990 for one season, with no adjustments.[9]

The historical data was truncated to 48,000 kwh/annum to permit easier analysis. The billings were divided by 12 to approximate customer count, and constant energy block intervals were developed by summation or by linear interpolation (Figure 4). These data were plotted to show users vs. energy block distribution, as a function of selected years (Figure 5). The residential billing for 1990 (Figure 6) was applied to each block of use, and revenue per block and cumulative total revenue was derived.

A variety of fixed service charges and associated energy rate charges deriving the same total revenue was compared. To the extent that the numbers are valid, a severe discrepancy appears between an assumed cost model and the current rate design model, leading to apparent overcharging of high-end users and undercharging of low-end users. The average customer cost-of-service figures were then used as a check. The "average" customer paid $850.00/year in 1990, with $55.00 derived from the fixed charge and $800.00 for energy charges, and used 13,600 kwh. Puget Power costs are $203.83 fixed, $257.13 demand, and $388.96 energy, totaling $850.00.[10] The fixed and demand costs exceed the fixed charge by a factor of over 8, while the energy costs are low by a factor of less than one-half.

For a variety of reasons, while Puget Power has increased the number of residential customers significantly, the energy required to serve all of them has increased very modestly. The current rate structure will incorrectly predict future costs if the current pattern of growth continues, and

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[6] Bill Frequency Analysis, Monthly & Bimonthly Billings, 01/1990-12/1990, "Energy," March 16, 1991.
[7] DECCHART.XLS Residential Service Cost of Service ending 9/30/88 (Page 1).
[8] Ibid., Page 1 (pie chart).
[9] Verbal Report, Collaborative Meeting, December 6, 1991; report given by James Lazar, Consultant to Washington Attorney General.
[10] Ibid.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	BLOCK ENDING				REVISED										
2		ALL RES	ALL RES	OPEN/CL	BLOCK ENDS			ALL RES.		1990	CUM		OP/CLOSE		
3		1979	1990			1979	KWH/YR	SCHED	CUST79	EST. CU	CUM	% TOT	1990		
4	0	38619	41565	46369	0	38619	0	41565	3218	3464	3218		46369		
5	10		14924	6441	100	101428	1200	116426	8452	9702	11671	3%	84233		
6	20		11806	7178	200	118495	2400	145734	9875	12145	23545	5%	103958		
7	30		11014	8398	300	140334	3600	243166	11695	20264	33240	8%	87525		
8	40	34729	10618	9313	400	189012	4800	381928	15751	31827	48991	12%	73757		
9	50		10152	9954	500	238326	6000	500622	19861	41719	68851	17%	60119		
10	60	21570	11076	10521	600	274957	7200	572849	22913	47737	91764	23%	49067		
11	70		10669	10681	700	297954	8400	594322	24830	49527	116594	29%	38935		
12	80	22140	11585	11009	800	310680	9600	575995	25890	48000	142484	35%	31260		
13	90		12173	10738	900	309003	10800	532476	25750	44373	168234	42%	24368		
14	100	22989	12409	11100	1000	298393	12000	481819	24866	40152	193100	48%	19597		
15	110		12149	10795	1100	284932	13200	436419	23744	36368	216844	54%	15957		
16	120		13168	10936	1200	264165	14400	371041	22014	30920	238858	59%	12547		
17	130		13126	10733	1300	239765	15600	323842	19980	26987	258939	64%	10261		
18	140		13395	10761	1400	213748	16800	279049	17812	23254	276651	68%	8356		
19	150		14046	10534	1500	189540	18000	240544	15795	20045	292446	72%	6863		
20	160		14696	10288	1600	164933	19200	205924	13744	17160	306190	76%	5376		
21	170		14953	10392	1700	142307	20400	175079	11859	14590	318049	79%	4575		
22	180		15892	10177	1800	122996	21600	151349	10250	12612	328299	81%	3822		
23	190		16671	9717	1900	105511	22800	129472	8793	10789	337091	83%	2934		
24	200	118495	17638	9625	2000	92669	24000	111307	7722	9276	344814	85%	2637		
25	300	140334	243166	87525	2100	82989	25200	96264	6916	8022	351730	87%	2069		
26	400	189012	381928	73757	2200	73310	26400	83831	6109	6986	357839	89%	1667		
27	500	238326	500622	60119	2300	63630	27600	72806	5303	6067	363141	90%	1462		
28	600	274957	572849	49067	2400	53950	28800	63082	4496	5257	367637	91%	1271		
29	700	297954	594322	38935	2500	44271	30000	55278	3689	4607	371326	92%	947		
30	800	310680	575995	31260	2600	42251	31200	48189	3521	4016	374847	93%	824		
31	900	309003	532476	24368	2700	40231	32400	41100	3353	3425	378200	94%	701		
32	1000	298393	481819	19597	2800	38211	33600	34010	3184	2834	381384	94%	578		
33	1100	284932	436419	15957	2900	36191	34800	26921	3016	2243	384400	95%	455		
34	1200	264165	371041	12547	3000	34171	36000	19832	2848	1653	387247	96%	331		
35	1300	239765	323842	10261	3100	31611	37200	18852	2634	1571	389882	97%	329		
36	1400	213748	279049	8356	3200	29052	38400	17871	2421	1489	392303	97%	327		
37	1500	189540	240544	6863	3300	26492	39600	16891	2208	1408	394510	98%	324		
38	1600	164933	205924	5376	3400	23933	40800	15910	1994	1326	396505	98%	322		
39	1700	142307	175079	4575	3500	21373	42000	14930	1781	1244	398286	99%	320		
40	1800	122996	151349	3822	3600	18813	43200	13949	1568	1162	399854	99%	317		
41	1900	105511	129472	2934	3700	16254	44400	12969	1354	1081	401208	99%	315		
42	2000	92669	111307	2637	3800	13694	45600	11989	1141	999	402349	100%	313		
43	2100		966264	2069	3900	11135	46800	11008	928	917	403277	100%	310		
44	2200		83831	1667	4000	8575	48000	10028	715	836	403992	100%	308		
45	2300		72806	1462											
46	2400		63082	1271											
47	2500	318150	55278	947											
48	3000	191053	187775	3196											
49	4000	213730	149299	2061											
50	5000	101783	40027	522											
51	6000	46897	11951	190											
52	7000		4475	67											
53	8000	28967	2091	27											
54	10000	6288	1863	16											
55	20000	3003	1238	15											
56	30000	213	96	1											
57															

Nov 7 1991

FIGURE 4

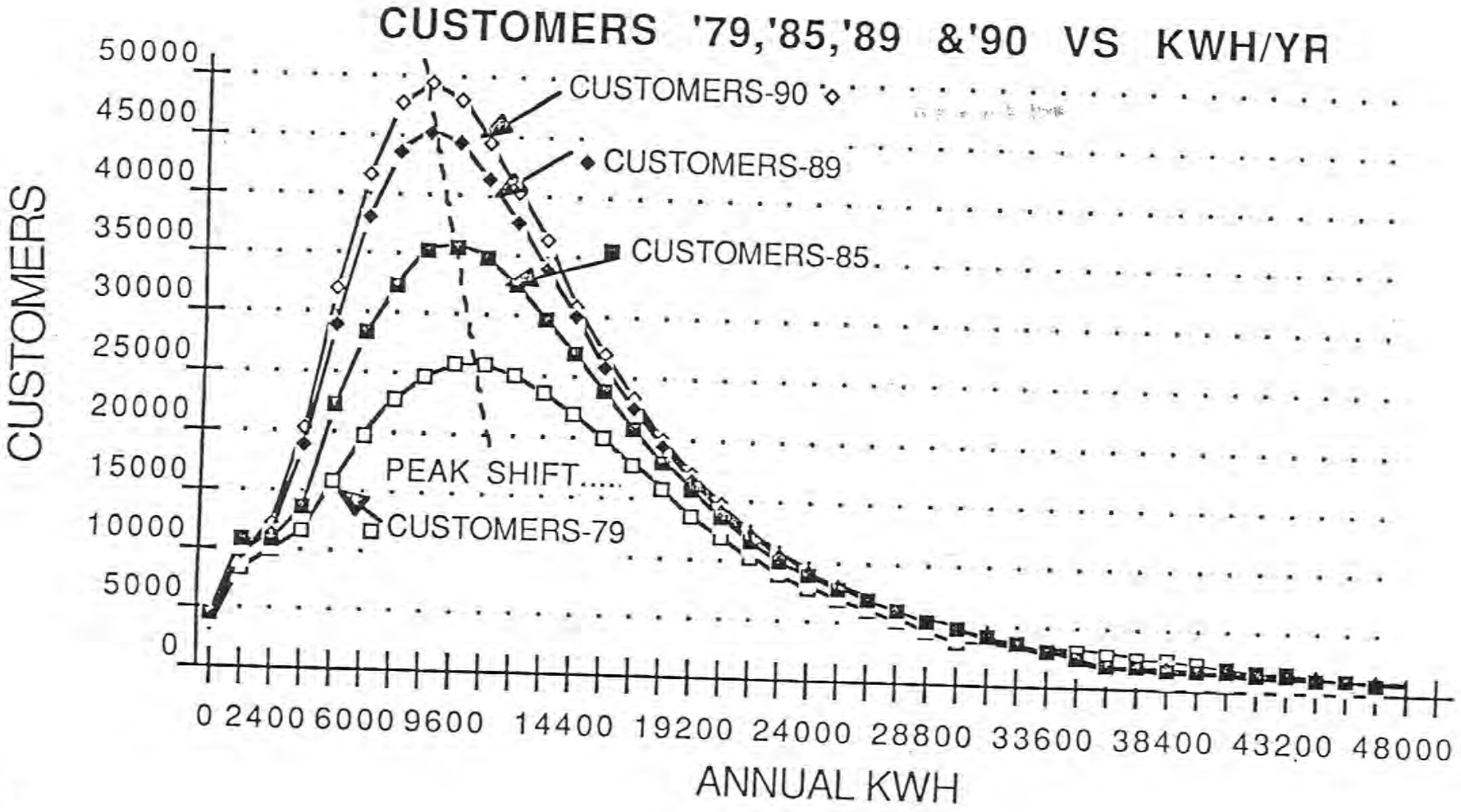
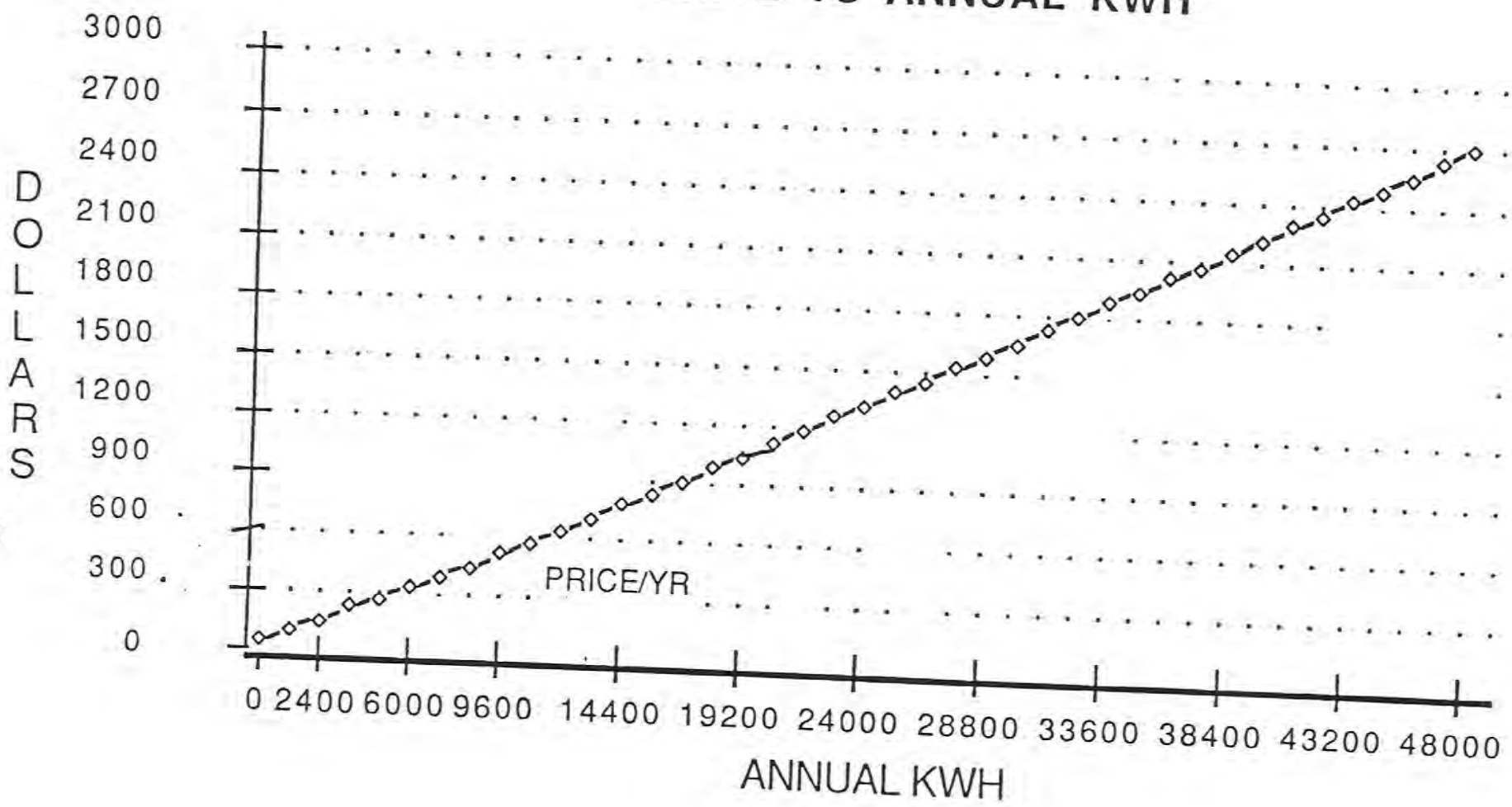


FIGURE 5

USERS VS KWH/YR 1979-1990
NOV 6 1990



PRICE= $54.60 PER YEAR +
$.04742 FOR FIRST 7200 KWH +
$.0508 FOR NEXT 4800 KWH +
$.O54766 FOR REMAINING KWH

FIGURE 6

PRICE VS KWH/YR
NOV 18, 1990

will produce a shortfall in revenue which can only be remedied by continued interim increases in the rate structure. To the extent that the major growth will be in the Lights and Appliances category, the new price structure will mitigate this disparity.

At the low end, users up to 7,200 kwh/annum will still see a raise, due to the service charge, mitigated by the lower energy charge. About 15% of all users fall in this category. The charge is justifiable, assuming that the cost of service is $180.00 for that class of service. "Gradualism" of the introduction of all rates will lessen the shock, but not the ultimate true burden.

Next, equal concern arises over the use of the "Historic Energy" rate by those whose demand/energy use ratio is extremely high (seasonal "second home" users), and those new customers who are coming into the system and increasing our power demand into a requirement for expensive sources. Our position is that the first group could fall into the use category of less than 4,800 kwh/year and will thereby be paying a more appropriate annual fee. The new customers, even with no electric water heating or space heating, will be in the upper bracket of Lights and Appliances use, and will be paying a portion of their bill at the higher rate.

Reduction, or elimination of the fixed charge for needy cases, could incur costs up to $12M. This group does not consider the use of special rates for welfare cases as appropriate. (See "Rate Spread," Recommendation E.)

On the other hand, means of reducing the fixed <u>costs</u> for any particular group is encouraged. An example would be to bill a group of users as one billing (apartment or condos) and letting a user's group determine and collect each user's bill. Second, the billing could be on an annual basis, front loaded monthly or bi-monthly, reducing the service charge.

This analysis could have been much improved by:

a. Improved demographic data, involving customer accounts. In this way, the seasonal high-demand user could be effectively separated from the annual low-demand user.
b. Accurate cost-of-service data, applied to each of the user categories (Lights and Appliances, Water Heating, and Space Heating).
c. More accurate cost data concerning Puget Hydro, Puget Thermal, Contracted Hydro, and Contracted Thermal energy sources.

B. Recommendation Title: **Home Energy Rating System**

1. Recommendation Statement
   Puget Power should add to its voluntary home energy audit a system of rating homes according to their relative energy efficiency on a scale of, e.g., one to five stars.

2. Purpose of Recommendation
   Home energy rating systems are intended to:

   a. Increase consumer awareness of conservation.
   b. Allow home buyers to anticipate energy expenses on a consistent comparative basis.
   c. Stimulate increased consumer interest in existing Puget conservation programs.
   d. Motivate individual consumers to make their own conservation investments.

3. Supporting Rationale
   Home energy rating systems have been used in dozens of American locations to stimulate demand for conservation. An example of an actual home energy rating system is attached (Figure 7). The following criteria could be included in the program design:

   a. Easy relation of other Puget conservation programs to home ratings.
   b. Stimulation of consumer conservation investments.
   c. Inclusion of all major energy uses -- appliances, lighting, mechanical, thermal.
   d. Accommodation of existing Puget audit procedures.
   e. Adaptability to include all home categories -- mobile, multi-, single.
   f. Suitability for any fuel -- electricity, gas, oil.
   g. Easy consumer comprehension.
   h. Widespread recognition and respect from appraisers, lenders, and realtors.
   i. Ability to incorporate anticipated new technologies.

   Innovative methods should be established to avoid added cost/burden to the utility. These may include:

   a. Using computer-assisted evaluations as audit for previously accomplished physical audits. For example, a computer subroutine would flag consistent deviation in energy use from an established baseline.
   b. Puget Power and/or state/county/city agencies could train a cadre of community volunteers.

rogram gives efficiency score) homes in Ft. Collins, Colo.

The Fort Collins, Colo., Light & Power lity's Energy Score program is a com- terized home energy rating system t gives energy-efficiency scores to mes in its service area. A 1990 winner he national awards program for en- y innovation, Energy Score works ch like ratings that compare automo- s on the basis of miles per gallon.

The utility trains independent busi- s people to perform rating analyses all customers who wish to participate he program. The raters charge $100 175 depending on the size of a home type of equipment it uses. Fort subsidized $100 for each of the t 75 homes rated and has reduced amount by $25 for every subsequent of 75 homes. Approximately 350 nes have been rated since the gram's inception in 1989, said Dou- Swartz, energy services engineer at t Collins.

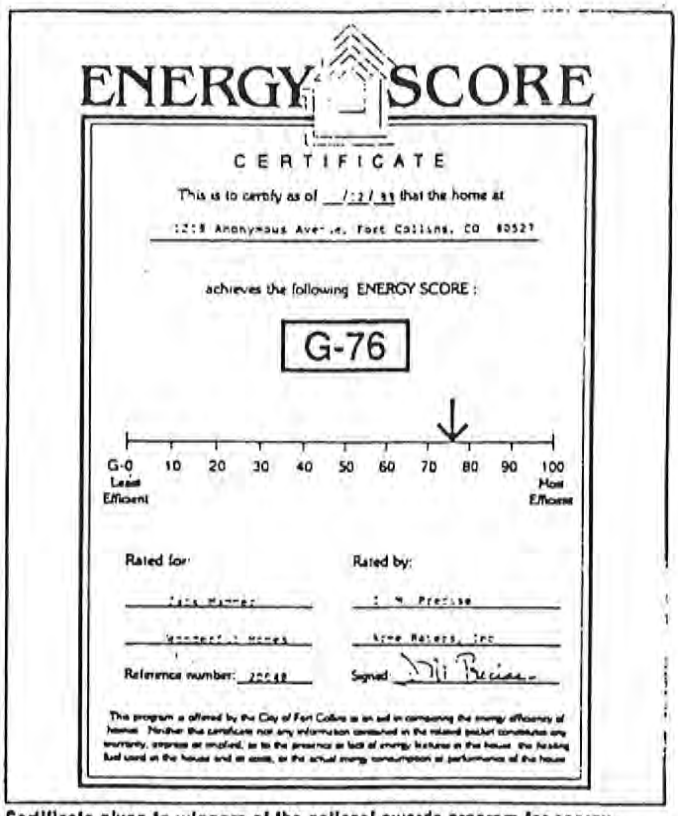
aters investigate insulation, windows, rs, air leakage, thermal configura- and mass, mechanical equipment active and passive solar systems. The ection can be done on-site or by g floor plans. The information is converted by a microcomputer erated analysis that comes up with an energy score between zero and 100.

Participants receive a score, detailed computer results and a package to help make energy efficiency improvements. The rater also may offer additional suggestions. The city has a $50,000 loan fund with no interest for homeowners to finance improvements.

New homes—three- to four-years-old—typically receive a score in the mid-70s to 80s, said Swartz. The highest score so far was a gas-heated home that received an 87. The lowest score for all homes rated was a zero.

The program will save nearly $1.2 million or 10% of space heating and water energy costs for customers, the utility said. The utility expects to recover the $200,000 pricetag for program development, implementation and marketing in three years. In the long term, the utility would like to get to a point where "virtually every house in Fort Collins gets scored," said Swartz.

The state is developing a statewide home energy rating system using the Fort Collins program as a prototype. ▮


ENERGY SCORE

CERTIFICATE

This is to certify as of __/__/__ that the home at

[illegible] Anonymous Avenue, Fort Collins, CO 80521

achieves the following ENERGY SCORE:

G-76

G-0 Least Efficient 10 20 30 40 50 60 70 80 90 100 Most Efficient

Rated for: [illegible]

Rated by: [illegible]

Reference number: [illegible]

Signed: [illegible]

This program is offered by the City of Fort Collins as an aid in comparing the energy efficiency of homes. Neither the certificate nor any information contained in the related packet constitutes any warranty, express or implied, as to the presence or lack of energy features in the house, the heating fuel used in the house and its costs, or the actual energy consumption or performance of the house.

Certificate given to winners of the national awards program for energy innovation.

FIGURE 7

c. Training/certification could extend to private companies/individuals to provide energy audits as a service.
d. Homeowners could be provided a do-it-yourself kit to conduct the audit. The homeowner could then register the audit with the utility and as in "a" above, inexpensive computer-assisted techniques could flag any inconsistencies; in this case, based upon dwelling size, number of family members, time-of-day occupancy, and degree days.

C. Recommendation Title: **Interruptible Rates/Time-of-Use Rates**

1. Recommendation Statement

a. Puget Power should examine methods to provide residential customers the option of taking water heaters "off line" (possibly space heaters) during periods of peak demand times and provide incentives for this action.
b. Puget Power should examine methods to give time-of-use rates for customers who choose to participate in a credit or incentive program to control power load when needed.
c. Puget Power should treat voluntary "shed" or "curtailed" power as an energy resource and provide incentives accordingly.
d. Puget Power should pursue a pilot program to further examine the opportunities.

As a minimum, Puget Power should ask a broad representation of consumers whether interest and/or willingness to participate will give rise to further consideration.

2. Purpose of Recommendation
To free a relatively large power source during times when either curtailment is anticipated or is more cost effective than purchasing power during peak demand periods. To provide a choice for customers to participate and provide incentive in some form to participants for being power providers when the need exists. This recommendation is focused on the future when interruptible and time-of-use rates may be a routine energy resource, obviating new physical plants and natural resource depletion.

3. Supporting Rationale
Puget Power is required by statute to meet the power needs of customers in its service territory. It might be advantageous to Puget Power to be able

to shed load in times of high energy demand such as the "Arctic Express." This "shed" load would become a power resource and may prove more economical than thermally generated power often required to meet such shortfalls.

There are a number of ways of approaching such an option: participating consumers could purchase at cost demand meters and be rewarded for participation according to the history of their power use; or, consumers could sign up for an interruption at the behest of Puget Power operations. For example, radio control devices might be used. A member of the Task Force suggested an installed device that will respond to a specific voltage and automatically take the water heater off line when needed -- a small indicator light or tone would tell the consumer of the action. Reset could be either automatic or manual depending upon cost and/or power restoration considerations. These consumers would benefit through financial incentives based upon the value of the resource curtailed and made available.

Puget Power currently has interruptible rate schedules available to industrial and commercial customers with large loads, and many residential consumers are in the position to assist in meeting load demands through curtailment of water heating.

Puget Power indicates this practice may not be a viable economic alternative. However, customer growth, insecure power contract prospects, and sound corporate planning dictate that this alternative energy source be pursued.

Rate Design, Commercial/Industrial/Other

A. Recommendation Title: **Conservation**

The current commercial and industrial rate structures do not appear to encourage conservation. The current residential rate structure is intended to encourage conservation through its inverted rates. All users of a limited resource should contribute toward conservation. The provision of that limited resource has an impact on the environment which is a cost to the entire community.

If the residential rate design structure continues to emphasize conservation, then we propose that industrial/commercial rate designs/structures do the same. The following four proposals are framed to accomplish this purpose:

B. Recommendation Title: **Inverted Tail Block Rate**

1. Recommendation Statement
   Create a tail block rate for heavy industry, e.g., 90% of prior year's usage at existing rate schedule; any additional usage at a premium rate or create a credit system to encourage a reduction in usage.

2. Purpose of Recommendation
   Purpose is to promote energy conservation.

3. Supporting Rationale
   Industry would have incentive to conserve.

C. Recommendation Title: **Large New Power Requirement Lead Time**

1. Recommendation Statement
   Industry would be required to notify Puget Power of large new blocks of energy with a lead time of five years, or pay higher than the standard rates for others in the same rate group. Once time passes, allowing Puget Power appropriate planning and new resource acquisition, rates would revert to the standard rate.

2. Purpose of Recommendation
   Purpose is to hold down the cost of new energy sources by allowing adequate planning time

3. Supporting Rationale
Going out on the short-term market is more expensive than for long term, and any company causing a short-term purchase should pay the full cost.

D. Recommendation Title: **Hookup Fee**

1. Recommendation Statement.
Impose an elevated per-kilowatt hook-up fee for all new connections to be reduced according to those cost-effective conservation measures which are implemented.

2. Purpose of Recommendation
The purpose is to encourage power conservation through economic incentives.

3. Supporting Rationale
The rationale is that the potential reduction in the hook-up fee will encourage proper planning and use of electrical energy regardless of the variation and woeful inadequacy in local code requirements. It will also help toward meeting BPA planning requirements. It will also fully exploit Puget Power's assistance program, provide for growth in this program to meet future growth needs, and provide the stimulus for technical improvements in industrial and commercial facilities as well as improvements in planning -- and call attention to the need to improve regulatory provisions accordingly.

E. Recommendation Title: **Rate Classification**

1. Recommendation Statement
Break the existing Commercial/Industrial rate class into multiple segments, e.g.:

(a) "Ma & Pa" -- up to 5,000 kwh/month.
(b) Less than 50,000 kwh/month.
(c) Greater than (or equal to) 50,000 kwh/month with demand.

2. Purpose of Recommendation
The purpose would be to apply the other recommendations in a more sensitive manner and make rates more equitable.

3. Supporting Rationale

The existing class covers too broad a spectrum of users. The Task Force has no preconceived notion that individual consumer rates would increase or decrease as a result of implementation; rather, that rate design may be more appropriately applied in the future.

Concerns and Comments

A. General

The focus from all sectors seems to be on conservation. Conservation appears to be the first priority -- stemming from the WUTC and permeated throughout Puget Power and concentrated with the residential consumer as the target. This process will result in the potential for reduced costs to the consumer.

The first priority should be on providing inexpensive electrical power efficiently. Electrical power provides goods, comfort, and convenience to people -- focus should be to do so as cheaply, efficiently, and abundantly as resources and technology permit.

B. Rate Spread

There is a reasonable understanding in the Task Force of residential rates. There is a shallow understanding of various segments of industrial and commercial rates. How these segments treat electrical energy on the ledger is germane. Similarly, the role of specific industries and businesses and respective contributions to the regional economies is not well understood.

C. Rate Design, Commercial/Industrial/Other

1. Conservation
   Attempt to have state-mandated comprehensive conservation measures applicable to all existing and future structures, perhaps based upon temperature variations and utility economics. This treats all Washington state energy consumers equitably.

2. Time of Use
   Area and architectural lighting (decorative) should be on timers -- to avoid lighting the 3 a.m. sky.

3. Street Light Maintenance
   Allow private companies or agencies to maintain Schedule 53 street lights, allowing Puget Power to conserve the resources otherwise expended.

4. Marginal vs. Imbedded Cost for Bulk Power
   Future contracts with new bulk power consumers should be based on the cost of non-hydro energy.

Minority Reports

1. Dave Plummer
2. Edward (Mac) Gardiner
3. Dan Morin
4. Fred Dullanty

Minority Report - D. F. Plummer

MINORITY REPORT:
COMMENTS ON PUGET SOUND POWER & LIGHT'S

RESIDENTIAL ELECTRICITY RATE DESIGN
(RATE SCHEDULE 7 OF TARIFF G)

by

D. F. Plummer

Member, Puget Power Rate Design Task Force

I. Background and General Considerations for Rate Design

1.1 Background

1.1.1 Trying to understand the history and rationale for the pursuit of least cost planning (LCP), "decoupling," and the need for redesigned electricity rates for Puget Sound Power & Light is a formidable task. Apparently the genesis of the concepts lies in the often arcane debate in the regulated electric utility arena. Such concepts have apparently been implemented to various degrees in California, and perhaps in other states.

1.1.2 It is a bit difficult to develop a really succinct description of these concepts, or to understand why they are treated in some connected fashion. However, their implication is that a regulated utility should be allowed to charge customers a price for electricity use which is not (as directly as possible) related to the costs which a customer (or class of customers) imposes on the utility in generating, transmitting, and distributing the electricity. In the case of the overworked emphasis on "conservation," their implication is to reward the utility for producing nothing, a very strange concept in both regulated and free market economics.

1.1.3 In reviewing the materials which Puget Power provided (References 4.1 through 4.3), I find it alarming that *apparently* there has been no evaluation of these concepts by any economists, at least none outside the rather narrow group of self-styled "experts" within the electric utility field, and their habitual detractors, the NRDC, the Washington Attorney

General's "consultant," and other narrow interest groups. Puget's current efforts (in the form of the Collaborative Group and the Rate Design Task Force) are apparently attempts to acquire some form of endorsement of these concepts.

1.1.4 I believe that decoupling, especially, needs a much higher level of independent scrutiny by professional economists, and economists from the academic community.[1] Without such review, it will be difficult to really understand the implications of the LCP/decoupling concepts. Moreover, the time constraint imposed on the Rate Design Task Force (to prepare our report), the lack of access to a good Puget Power "data base," and the unavailability of any "independent" rate design/utility economists severely restricted the ability of the Task Force to develop informed opinions upon which to base our recommendations.

1.1.5 In general, however, I seriously doubt that a careful, micro/quantitative economic evaluation of both LCP and decoupling will confirm the poorly-defined assertions set forth by Moskovitz in Reference 4.3. The number of variables (e.g., customer preferences, characteristics of customer energy conversion devices, weather parameters, customer-class characteristics, etc.) which must be accounted for in meaningful theoretical and empirical evaluations of these concepts (and their regulatory-policy and rate-design implications) is extremely large. Nevertheless, at least preliminary results of both types of evaluations should be available to our Task Force to allow us to better understand the preferred approach to residential rate design.

1.1.5 In spite of these reservations, I will make some suggestions for design of Puget's residential schedule. These suggestions may be useful in developing a new set of rate schedules for Puget's residential customers, but I think their rationale lies more in conventional rate design than the darkness of the LCP/decoupling.

1.2 General Principles of Cost Assignment and Rate Design

1.2.1 According to the information given to our Task Force by Puget Power, one of the initial steps in developing coher-

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[1]Two possible contacts at the University of Washington Are Professors Robert Halvorsen (Telephone 543-5546) and Richard Parks (Telephone 543-4493). In addition, an independent consultant, Dr. David Weitzel (Telephone TBD), could also be contacted as a possible source of information.

ent rate schedules is the identification, classification, and allocation of Puget's electric power/energy generation, transmission and distribution costs to their specific customer classes. This is a complex process, and involves a certain amount of judgmental assignments (e.g., to allocate "joint costs"), but the net result is to identify the *demand*, *energy*, and *customer* costs which are imposed on Puget by each customer class. Apparently Puget Power performed such a process most recently in 1988.

1.2.2 Another rate-design principle is concerned with resolving the controversy between the use of short-run/long-run marginal costs, and long-run incremental costs as a basis for determining overall cost/revenues, and for developing prices for various customer classes. Puget Power did not provide us any reasonably-detailed information on its marginal or incremental costs. In one of the presentations it indicated that its "estimated, 20-year levelized resource" energy costs were 3.5 cents per kWh for conservation, 6.0 cents for cogeneration, and 8.0 cents for a coal plant. No information was presented on how its marginal or long-run incremental costs varied as a function of demand, time of day, season, etc. (Presumably we would have been provided information similar to that shown in Figure 1.) In the absence of such information, and in view of the continuing controversy about which costs to use,[2] it is not really possible to correctly integrate such considerations into Task Force recommendations for rate design.

1.2.3 References 4.5, 4.5, and 4.8, and many other sources, identify a variety of approaches to electric utility rate design. In general, the procedures attempt to develop rate design concepts which ensure that each customer class is charged prices which are related to the costs which each class imposes on the utility. None of these references deal with rate design approaches which may be appropriate to "decoupling" and "least cost planning;" consequently, it is difficult to develop innovative approaches without a reasonable understanding of the underlying concepts. Indeed, unless one is a true "expert" in electric utility and micro/quantitative economics, it is virtually impossible to propose approaches which will be both internally consistent and compatible with the decoupling/LCP concepts.

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[2]See, for example, the discussion on Pages 147 through 155 of Reference 4.5, and Chapters 9, 10, and 11 of Reference 4.8.

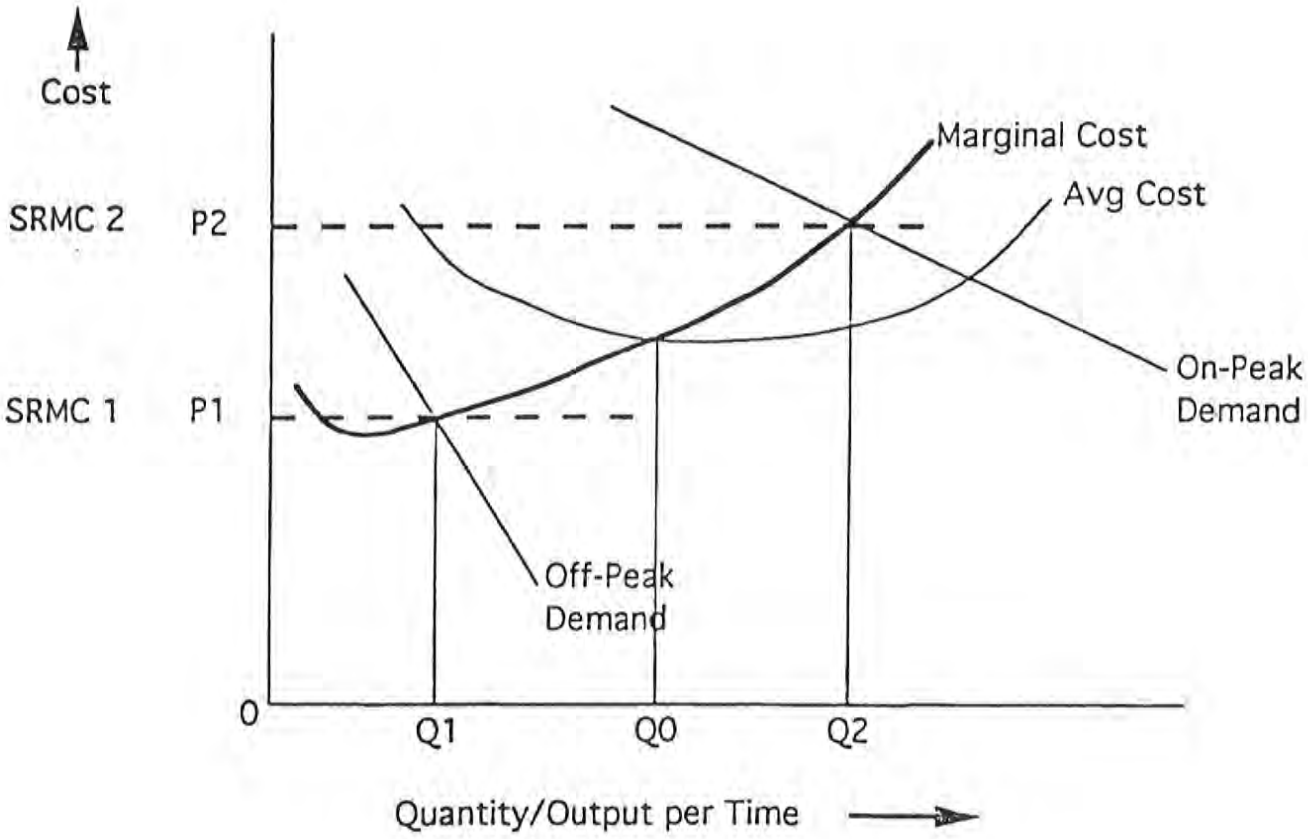

Figure 1. Illustrative Relationships Between Marginal and Average Costs for Electricity Demand

2. Existing Rate Schedules, Cost of Service, and Energy Cost

2.1 Existing Rate Schedules

2.1.1 At present, there are roughly 20 rate schedules in Puget Power's Tariff G which have demand/energy/service charges. Their characteristics are summarized in Table 1. *One* schedule (Schedule 7) has an *increasing* energy block rate structure; there are *three* schedules (**8, 24,** and **29**) with *declining* energy block rates. The balance of the sixteen schedules have *flat* energy/service rates.

Table 1. Rate Schedules of Tariff G, Puget Sound Power & Light Co.

Schedule No.	Service Category	No. of Energy Blocks In 'Summer'	No. of Energy Blocks In 'Winter'	Energy/Service Block Rate Increasing (I), Flat (F), Declining (D) In 'Summer'	Energy/Service Block Rate Increasing (I), Flat (F), Declining (D) In 'Winter'
7	Residential Service	3	3	I	I
8	Residential & Farm	3	3	D	D
10	Residential & Farm	1	1	F	F
24	General Service	3	3	D	D
29	Seasonal Irr./ Drain. Pump.	2	2	D	D
31	Primary Gen. Service	1	1	F	F
35	Seasonal Irr./ Drain. Pump.	1	1	F	F
43	Interruptible Pri. Gen. Serv. for All-Electric Schools	1	1	F	F
46	Interruptible High Volt. Gen. Service	1	1	F	F
49	High Volt. Gen. Service	1	1	F	F
50-59	Service Schedules for 10 Classes of Different Lights (Mercury Vapor, (Sodium Vapor, Customer- & PSPL-Owned)	Costs for this electric power and energy are billed at flat rates depending on the wattage and ownership of the light			

Source: Puget Sound Power & Light Company Electric Tariff G

2.1.2 On Page 15 of the Factbook, Puget identifies three major subclasses within the residential rate schedule (Schedule 7 of Tariff G); these are "Space Heat" (Billing Schedules 17 and 37), "Water Heat" (Billing Schedule 07, which includes general lighting as well), and "Lights & Appliances" (Billing Schedule 27). Billing Schedule 47 applies to water heating only, but it is not shown in the data on Page 15 of the Factbook; perhaps its data is accounted for in Billing Schedule 07 data.

2.1.3 For each of these major subclasses, or perhaps for each of the five billing schedules, Puget could presumably determine expected values (and dispersion statistics) for installed maximum power consumption, i.e., "demand" statistics. For example, and typical 3000 ft^2 home without electric space heating may have an installed demand power capacity of, say, 30 kW; the same home with a central electric furnace may have 55 kW, etc. These statistics could be established by customer surveys, and then used as the basis for establishing a demand-charge element of a new residential rate design. *Especially for potential new customers who take the time to acquaint themselves with Puget's rate schedules, the existence of a demand charge can serve as a direct incentive to acquire a residence with the lowest possible power profile.*

2.2 Cost of Service

Based on information furnished by Puget Power (References 4.1 and 4.2), and the "pie charts" given to the Task Force at the 20 November 1991 meeting, the cost of servicing Puget's residential customers is about 57% of its total customer service cost. That amount can be further divided (Reference 4.4) as follows:

•Customer cost	ca 24%
•Demand cost	ca 30%
•Energy cost	ca 46%

2.3 Cost of Energy

2.3.1 Puget Power did not provide sufficient information to the Task Force to enable us to evaluate the energy cost component of residential service cost. (Hopefully, we will be provided this information before the final report of the Task Force is to be submitted.) However, if one reviews the information given on Page 30 of Puget's Factbook, it can be seen that (in 1990) 16.6% of Puget's generation resources were

hydro, the balance (83.4%) being thermal. However, in 1990 Puget generated 64.8% of its electric energy from hydro resources (46.8% being obtained from contract purchases), while only 35.2% was generated from thermal units. Thus, Puget's energy production costs are dominated by *hydro production costs*

2.3.2 From previous studies which I have conducted (as co-chairperson of the 1980/81 rates and curtailment subcommittee, East King County Customer Advisory Panel), and based on testimony given by a former Puget Power Director of Rates,[3] it would appear that Puget's energy production costs are relatively constant over a considerable portion of their load-duration curve for much of the year. This fact is confirmed by, for example, Figure 2, and by Puget's response to the Whatcom County Consumer Panel (see Puget's response to the Whatcom County Panel's recommendation LCP-16). The result is that, except for extreme peak loads (such as those that may occur infrequently due to an "Arctic Event"), Puget's weighted/melded electricity production costs are *approximately constant throughout the year.*

2.3.3 During those periods of extreme power demand, as in an "Arctic Event," Puget may generate additional power/energy from its own hydro peaking units, from peaking combustion turbines (see, for example, the period from 0700 to 1100 hours as shown in Figure 2), or import it from out-of-area producers via the Pacific Northwest, and/or Pacific Coast/Pacific Southwest transmission line systems.

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[3]In testimony in Cause U-76-1 (Spring, 1976), Mr. R. H. Swartzell, at the time Puget Power's Director of Rates, gave the following description of Puget Power's production system: "In Puget's system, and other systems in the Northwest, peaking is covered on a daily basis with hydroelectric resources. Large thermal resources, now in existence and planned, are designed to cover base load energy -- not peak. Therefore, with respect to generation costs, we are concerned not with daily peak variations, but with the relatively few annual peaks which result from extreme weather conditions. Such peaking requirements will be met by installation of additional hydro peaking units." He noted further that "...with Puget's current and planned generating resource mix, such cost variations (at different times of the day) do not exist on a daily basis."

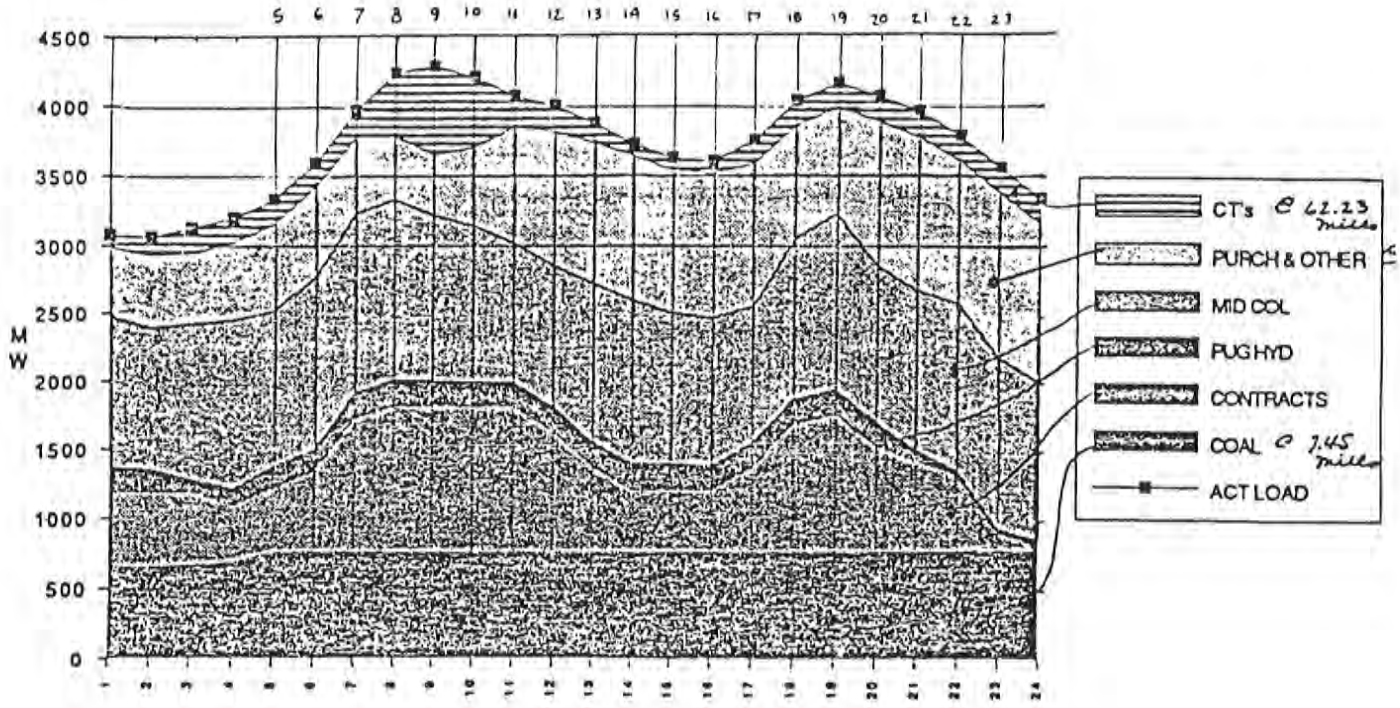

Figure 2. Puget Sound Power & Light Co. Load Profile for 21 December 1990

Source: Handout given to Rate Design Task Force, November, 1991.

3. Recommendations

3.1 Separate Rate Schedules for Distinct Customer Groups Within the Residential Class

3.1.1 Puget Power should establish at least three separate rate schedules for distinct customer groups within the residential customer class. These rates should cover at least the following groups of customers:

- Schedule 7.1 Customers with electric space heating
- Schedule 7.2 Customers with electric water heating, but without electric space heating
- Schedule 7.3 Customers with neither electric space heating nor electric water heating

3.1.2 Since it may be entirely feasible for Puget Power to distinguish the five separate residential customer groups (Billing Schedules 07, 17, 27, 37, and 47), it would be preferable to establish individual rates for each group. However, if a demand component is added to the residential rate schedule (see Recommendation 3.2), it would not be necessary to have separate schedules for each group, once their distinct costs could be accurately captured with one schedule.

3.2 Increase Customer Charge to More Accurately Reflect Puget's Costs

Regardless of whether one, three, or five rate schedules are established to replace existing Schedule 7, the customer charge should be increased so that it more nearly approximates Puget's cost-of-service-derived values, i.e., a value which will generate about 25% of the annual costs for this customer class.

3.3 Establish a Demand Charge Component for Residential Customers

3.3.1 Since different groups of residential customers impose different costs on Puget Power's electric energy delivery system, a charge proportional to the installed power consumption capacity of each customer's residence should be set forth in the appropriate rate schedule. Since the actual instantaneous power level demanded by each residential customer cannot be measured/recorded with existing metering, the demand charge will, of necessity, have some uncertainty associated with it. However, careful customer cost-of-service studies can develop acceptable proxies. Customers who desire

a detailed audit should, of course, be accommodated to ensure that they are being fairly charged. In addition, if Puget can show that the demand costs for residential customers vary on a daily and/or seasonal basis, the rate schedules should reflect such variation.

3.3.2 A very attractive feature of a "demand charge" is that it will serve directly as a conservation incentive, since customers would be motivated to reduce their demand charge as much as possible. Thus, they would be motivated to choose or use *power* and energy-efficient devices.

3.3.3 As a starting point for the new schedules, the demand charges should generate sufficient revenue to cover about 30% of the annual cost of serving the residential customer class.

3.4 Include a Constant Energy Cost Component for Residential Customers

3.4.1 To ensure that each residential customer is properly charged for the energy costs he imposes on Puget's system, a unit energy (per kWh) charge should (continue to) be incorporated in the residential rate schedules. This unit charge should probably be constant for a typical year, since Puget's energy production costs are roughly constant, except for extreme "Arctic Events," or during years of extreme low water conditions. Extraordinary costs which Puget might incur because of such conditions may be recovered retroactively, as they are at present. In any event, the residential rate schedules should contain an explicit cost component which will generate revenues proportional to the consumer's use of electric energy,[4] as measured by existing meters.

3.4.2 The energy cost component should generate about 45% of the annual service costs for the residential customer class.

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[4]It is my belief that the present "inverted" (increasing) block rate structure of Schedule 7 is Puget's way of recovering the major portion of residential customer and demand costs. This structure also exists as a result of tacit "price fixing" on the part of Puget Power, the Washington State Attorney General's (AG's) office (and the special interest groups which it represents), and the WUTC. The "price fixing" exists to transfer income to low-income consumers in Puget's residential customer class, and because of an arbitrary and capricious attempt on the part of Puget Power, the AG, and the WUTC to force their own ideas of "conservation price signals" on the residential customer class.

3.5 Recognition of Low-Income Residential Customers

Puget Power should petition the Washington State Legislature (probably through the WUTC) to improve accessibility of some form of "energy credits" to low-income consumers to help pay their electric bills. The Legislature and the existing State bureaucracy are best equipped to assess the needs of low-income customers, and to develop the most socially acceptable means of delivering "energy credits" to needy persons. Puget Power's rate schedules should not in any way be designed to transfer income to needy persons; only the State Legislature and our elected representatives should be burdened with this task.

3.6 Puget Power Should Investigate Use of "Power Meters" and "Hot Air Exhaust" Features in Electric Ovens

Over the past ten years I have worked frequently as a consultant in the Norwegian off-shore oil industry, primarily in Stavanger, Norway, for the Norwegian state oil company, Statoil. During my stays in Norway, I observed that each apartment or home that I lived in was equipped with instant-reading power meters and hot-air-exhaust blowers for electric ovens. The power meters provided a direct visual indication of the instantaneous power consumption of the apartment/dwelling. The exhaust blowers distributed "waste" heat into the kitchen when the oven was shut off; this provision could be shut off in the stoves I used. Both of these devices seemed to be useful in enabling the apartment/dwelling occupant to reduce electricity use, especially since almost all Norwegian urban residential units are electrically heated. I recommend that Puget Power investigate the use of such devices, both as a retrofit provision and as a new installation in homes/apartments within its customer service area.

4. Bibliography and References

4.1 1990 Factbook, Puget Sound Power & Light Company, Bellevue, Washington. Spring, 1991(?).

4.2 Financial Review, Puget Sound Power & Light Company, Bellevue, Washington. Spring, 1991(?).

4.3 Moskovitz, David. Profits & Progress Through Least-Cost Planning. National Association of Regulatory Utility Commissioners, Washington, D.C. November, 1989.

4.4 Telecon, D. F. Plummer to Colleen Lynch, Puget Power, 22 November, 1991.

4.5 A Consumers' Guide to the Economics of Electric Utility Ratemaking, Report No. DOE/RG/09154. U. S. Department of Energy, Washington, D.C. May, 1980.

4.6 Main, Charles T. The Accounting Cost Basis for Evaluating Block Rates. EPRI Report #68. The Electric Power Research Institute, Palo Alto, CA. 14 April 1980.

4.7 Plummer, D. F. "Analysis of Electricity Rate Schedules for Tariff G of Puget Sound Power & Light Company." Paper submitted to Puget Power, 15 February 1981.

4.8 Electric Utility Cost Allocation Manual (Draft). National Association of Regulatory Utility Commissioners, Washington, D.C. February 1991.

Minority Report - Edward Gardiner

INTERIM REPORT
RATE DESIGN TASK FORCE
MINORITY REPORT #2
E.M. GARDINER

INTRODUCTION

This Minority report does not reflect concern for the following:

1. The quality of individuals selected for the task force, their differing skills. or their devotion to the job given us. Each are experts in their field, and all fields were required. The task administration, both from Puget Power and that supplied by volunteers is excellent.
2. The briefings given us by Puget Power, the W.U.T.C or the Office of Atty. General. They were pertinent and complete.
3. The response of Puget Power, the W.U.T.C or the Office of Atty. General to any questions brought up by us. It was courteous, reasonably prompt, and as accurate as their own data could support.

My concerns do include:

1. The task assignment given.

   Simply, the task force was directed to provide a new model Residential Rate Design. This new model was to track costs versus revenues in a changing environment far better than the current rate design. This, the group did not do in an effective manner.

   Second, if required, the Rate Spread between Residential, Commercial, and Industrial customers was to be considered, and changes recommended, if appropriate. The change recommended by the group, if implemented, would make the resulting Rate Design even less capable of tracking costs versus revenues in a changing environment.

   I don't think that any of the task force had ever been asked to work this sort of problem before. It sounded like previous assignments, with which they were all familiar, but it was very different.

2. The length of time given to accomplish the task, considering the characteristics of the task force and the nature of the task

   It was completely unreasonable to expect volunteers to devote more than one 2 hr. meeting a week, given their geographic dispersion.

   The wealth of reading material gave a good general background, was very copious, but didn't point directly to the question asked. Each one studied the material at home, but concentrated on the subject of his or her own interest.

   This meant that the number of hours available to educate, brief, turn its own thinking around, and get a coherent and united opinion from this multi-disciplinary group was far too short.

So all of us got started along our old familiar paths, and there was no way to turn the group around in time for intelligent group decisions in the few hours of meetings available before the deadline. Given two more months, I don't think there would be the need for this report.....but that time is not available.

As a result, the group has proposed:
First, a **Residential Rate Design** with a fixed charge which covers the costs that are unrelated to demand or energy. This is necessary, and will ease the problem caused by the shift from Water Heating and Space Heating to Lights and Appliances. Up to this point, those costs have been largely covered by energy charges, and the new customers tend to fall in that category being subsidized by this means. Rate shock was met by a low energy rate for the first block, with the remainder of the revenue requirement met through higher energy charges on the heavier users. It is ironic that the energy rate chosen for the first block comes close to approximating the incremental energy rate required for proper response to varying energy demand.....however, lighting loads do not vary that much with "Degree Days" That load will be picked up by Water Heating and Space Heating, and the energy rate for that class is even further from the appropriate figure.

Second, the group has proposed that the Rate Spread between Residential, Commercial, and Industrial customers be changed to have each category pay its "Fair Share". In the absence of demand charging, and with the continuance of the low rate for the first block, the energy rate for the two heating categories will increase by an estimated 30%. This will make the energy rate for that class even further from the appropriate figure.

Third, the group did not respond to one clear direction of the Collaborative that *The rates can be made understandable to the customer* The majority of the group incorrectly (in my opinion) assumed that because *they* could figure out the bill, that the average customer could do so. This group is not average

Dave Plummer has prepared a minority report (which I completely second) that nicely covers one of the gaps in the model adopted.....namely the absence of a demand term in the model. In its absence, either the fixed charge would be too high for equity and proper accounting in the face of the increasing number of accounts; or the slope of the energy charge would be unrealistically steep, generating surplus revenues for cold winters and a converse for mild. Neither he nor I were able to convince the group of the necessity for that demand charge. Both of us feel convinced that demand metering's time has come for residential billing, as it has for commercial and industrial, and that the technology is now available for the installation costs to be low and the meter reading costs to be significantly reduced. Also, both of us feel that (at least) three separate fixed demand rates be set now, to approximate appropriate demand charges for 1. Lighting and Appliance; 2. Water Heating; and 3. Space Heating, in the absence of appropriate demand metering or an acceptable proxies .

This report addresses those limitations or omissions:

(1) It supplies quantitative estimates to demand rates and adds one new category. This approach permits Rate Spread modifications to satisfy equity requirements between classes without influencing the Rate Design Model's capability of responding to changes in customer use patterns or to environmental changes.

(2) It suggests a better format for billing customers

PROPOSAL

1. **Design a Model Rate Structure meeting the boundary conditions given.**

Alter the existing rate schedule, consisting of a small fixed charge, and a three tier energy rate with ascending rates for each successive higher energy block as follows (see Fig 1):

1. Raise the current **Customer Service Fee.** A charge of $204/annum for each customer is estimated.
2. Add one **New Customer Category** to the current three. The categories will then be:
   1. Lighting and Appliance
   2. Water Heating (in addition to Lighting and Appliance)
   3. Space Heating (in addition to Water Heating).
   4. **Estate** (includes Space Heating, and also includes high demand and energy use through supplementary heating loads and the possible use of guest house and other buildings on the same billing.
3. Add a <u>Demand Category</u> Fee which shall reflect the coincident annual peak KW demand placed on the system by each user. This fee could include rebate provisions for conservation and peak demand avoidance measures.
4. Use the proper **Energy Rate** to meet the new Revenue requirement. This is estimated to be of $0.02634/kwh

Note that in (Fig 1) each of the rate categories is applicable for the full range of energy considered. (dotted line); however, the expected use will fall along the full line. Each category will overlap in energy use, as is expected, to accommodate the variety of user requirements. Average demand fees, have been plotted, derived from a rate study (ref 1) giving $/KW Peak Demand and load factors for each use based on coincident peak demand conditions.

The rate schedules, applied over the expected use ranges, are shown versus the current rate design for all categories. The amount of

Rate Shock is evident, which pointed to the need for the "Estate" category to avoid too heavy a shock over that range.
Seasonal users have a much lower "Load Factor" than any category shown here, so they will still derive an advantage....until demand metering becomes universal.
Note that when a customer announces his shift from electric space heating to alternate heating, his bill will drop by $514/annum. If he switches to alternate water heating, his bill will drop by $252/annum. This provides an additional incentive for conversion, and also will promote more prompt notification of revisions to the roster of users in each category.

The above is to be used as an interim measure until the recommended demand meters are in use.
The estate category will require the use of a demand meter as soon as practicable because of the large variation in demand and costs involved. All new installations also should use demand meters, with the added cost borne as part of the hook-up fee.
The other categories will use some combination of electrical equipment inventory, past energy use historical data and customer declaration; until the appropriate time arises to change all installations to demand metering.

ANALYSIS

The current three tier energy charge, one fixed charge rate structure, applicable to all residential customers, does not meet current and expected customer load profiles resulting from the current dynamic demand and energy environment.

Two significant changes are the number of customers, and the category of use they represent; and the change in power use by current customers. The net effect is that the number of new customers is very high, and the total energy used per annum has increased very little.

Two other significant effects are that of "Degree Days" of temperature related power and energy demand, and water conditions leading to a lesser or greater dependence on thermal energy supply.

The current Rate Structure will incorrectly predict future costs to the extent that the current pattern of growth continues, and will produce a shortfall in revenue which can only be remedied by continued interim increases in the rate structure. In addition, abnormal weather and water conditions produce incremental demands for energy whose costs are not correctly recovered by incremental revenues. It is clear that a revenue model matching the Puget cost model is essential to meet the boundary conditions imposed on the study.

A single new fixed charge and a single new energy rate charge can come closer to a prediction of expected total costs under similar growth conditions, but suffers in that only the "average" customer will not incur significant "Rate Shock" plus or minus.

Customer demand for KW can vary by more than 30/1 and KWH energy use by up to 80/1. Clearly, demand charges, reflecting the costs of meeting KW demand, are required. The system categories, outlined above , represent a first approach to modeling the costs of service, in terms of revenue elements.

Concerns arise from the proposed approach:

First, the new energy rates derived from above would be low by a factor approaching 2/1 compared to current charges. The concern is that improper conservation "signals" would be given to the Space Heating users, promoting the squandering of a limited resource.

Second, low energy Light and Appliance users would be paying a significantly higher fixed charge, which, despite the lower energy charge, would result in a higher periodic charge for those at the lowest use scale. Unfortunately, the customer service charge has been held artificially low, and the correction is required. Several techniques for negating or mitigating this shock are available, including "Gradualism" and "Collective Metering"

On the other hand, the Demand Rate category now permits proper compensation to customers who incorporate energy conservation and peak power demand avoidance. Conservation can lessen the collective energy demand, while peak power avoidance systems can save peaking power costs, and also avoid Loss Of Power or Brownout conditions. For those reasons, conservation and peak leveling means can be rewarded with Demand Rate reductions. (Note that conservation users gain both on Demand Rate and energy use, whereas those who use peak power avoidance systems gain only from the Demand Rate compensation).

2. **Make the rate billing understandable to the customer**

1. The basic billing information should be presented in graphical form. (See Figure 2.)

2. This allows the customer to check either the meter reading or the bill computation; and also to determine why his bills seem to be running higher (lower) this year, compared to last year's billing.

3. A complaint, repeatedly voiced in public hearings held by the WUTC, is that, if the customer feels that he is being incorrectly charged, he can't work out how to check it.
First he must subtract the previous meter reading from the present, then multiply it by ten. Then he goes through a process that is (relatively) complex, involving subtraction, multiplication of multi-digit numbers (0.0494790. 0.0556680, 0.060012) times these subtracted numbers; and addition of the sum. Next he is informed that the bill had to be prorated because of seasonal change, and that the bill may not equal the actual charges! Next, a "Residential/farm/farm exchange" figure is applied and finally the State Utility tax of 3.873% is added. The chances are 90% that he will make an error somewhere that will give a drastically different answer, but if he goes in to complain, some accountant will go through the figures and point out, in an insufferably superior manner, just where he went wrong...this time. This does not please the customer one bit, nor did it really answer his complaint!

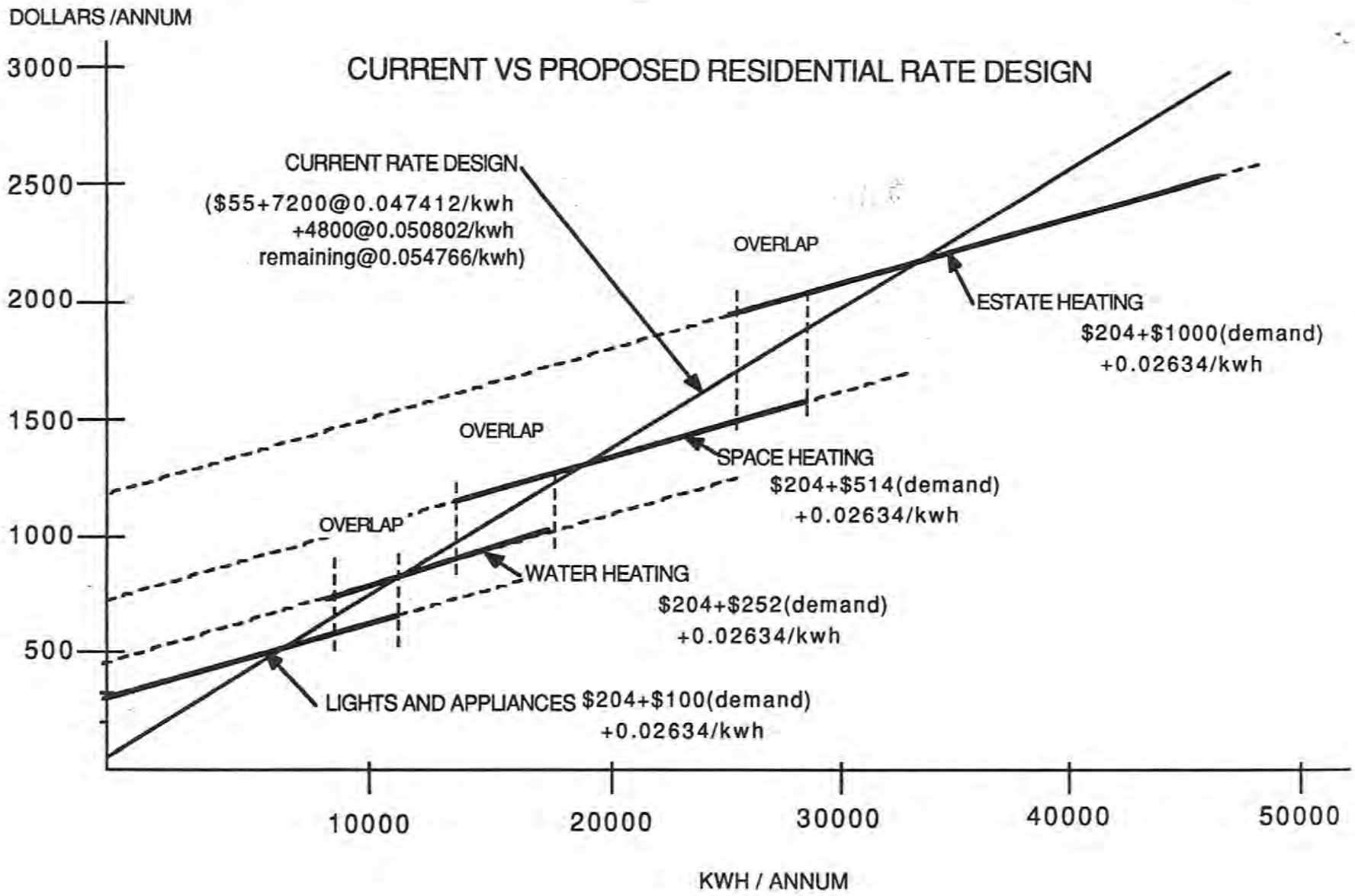
The graphical approach lets him read the meter, check it with the billed figure, and proceed directly to a close estimate of the bill (his and/or the company reading). Next, if his bills seem higher this year, he can tell by the degree days chart, why the Kwh are higher. (cold spell in Jan.-Feb.). If the meter reader did goof up, the customer can see if the difference is worth the effort and, if yes, enter a justified complaint.

The material presented used the same data available to the current billing program, and all data were computer derived and graphed from that data.

Limited tests showed easy comprehension and high acceptance. However, it may be a good idea to test on a larger sample of users to see if a "Graphic Literacy" problem with the average user could exist.

Reference

1. Verbal transmisssion from J. Heidell, Puget Power. Source: "Demand Costs of Service Study; Rate Case filed Sept 30 1988"(work sheet attached)



DEMAND BASED RATES-1
01/29/92

FIG. 1

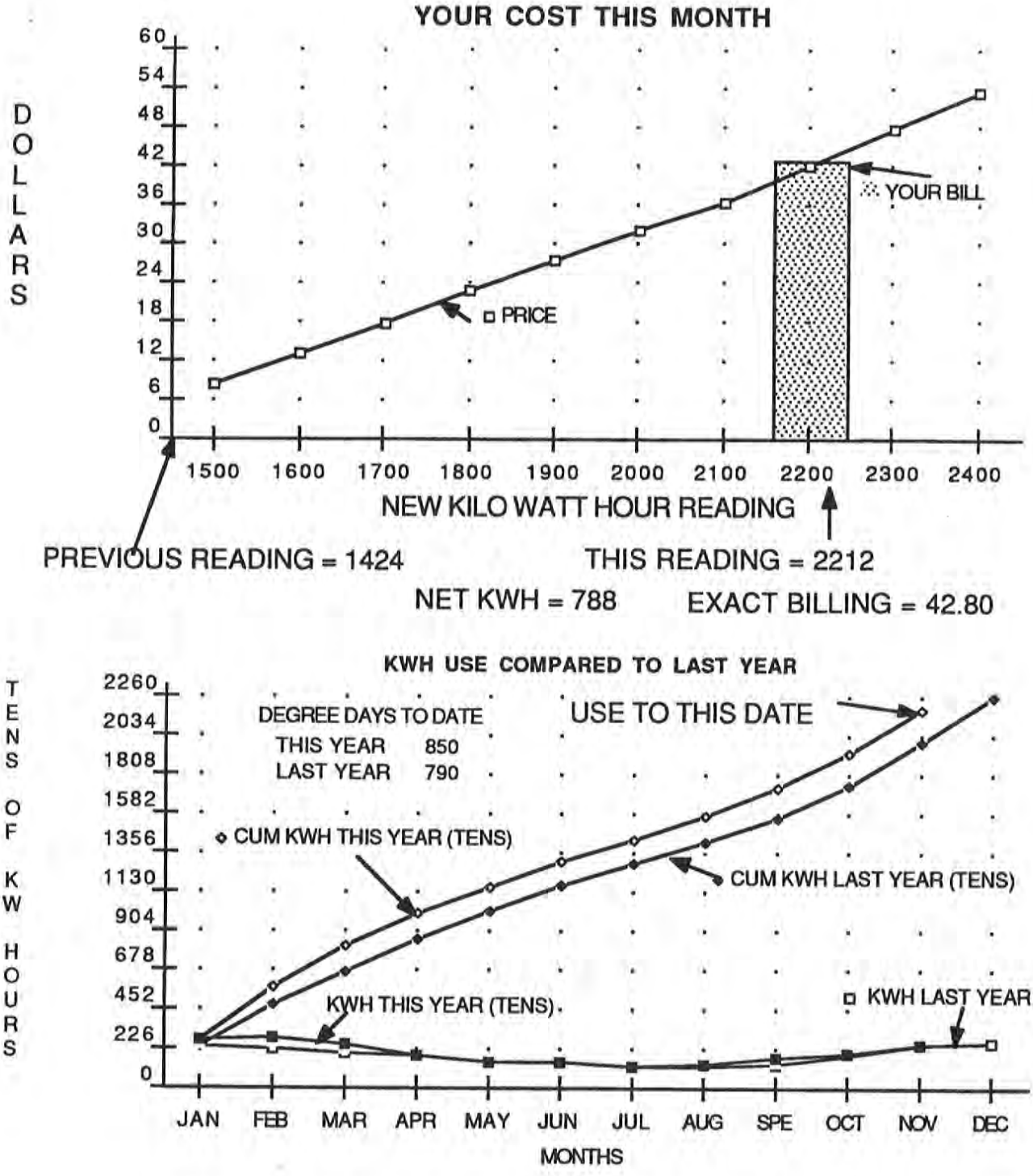

YOUR COST THIS MONTH
DOLLARS
60
54
48
42
36
30
24
18
12
6
0
PRICE
YOUR BILL
1500
1600
1700
1800
1900
2000
2100
2200
2300
2400
NEW KILO WATT HOUR READING
PREVIOUS READING = 1424
THIS READING = 2212
NET KWH = 788
EXACT BILLING = 42.80
KWH USE COMPARED TO LAST YEAR
TENS OF KW HOURS
2260
2034
1808
1582
1356
1130
904
678
452
226
0
DEGREE DAYS TO DATE
THIS YEAR 850
LAST YEAR 790
USE TO THIS DATE
CUM KWH THIS YEAR (TENS)
CUM KWH LAST YEAR (TENS)
KWH THIS YEAR (TENS)
KWH LAST YEAR (TENS)
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SPE
OCT
NOV
DEC
MONTHS

FIG 2

SOURCE: DEMAND COSTS OF SERVICE STUDY						
RATE CASE SEPT 30, 1988						
ANNUAL COSTS		DOLLARS				
PRODUCTION AND XMISSION		53.44	/ANNUM/KW			
DISTRIBUTION		16.84	/ANNUM/KW			
TOTAL		70.28	/ANNUM/KW			
		5.86	/ MO./KW			
LOAD FACTORS						
	LIGHTS & APP.	WATER HEAT	SPACE HEAT			
COIINCIDENT PEAK DEMAND	129634	454115	1468126			
NON COINCIDENT P. DEM.	242325	609414	1808379			
KWH/ANNUM	668322245	2195160780	5019990961			
Kwa (annual)	76292.49	250589.13	573058.33			
LOAD FACTOR-COINCIDENT	0.5885	0.5518	0.3903			
LOAD FACTOR-NON-COINCID	0.3148	0.4112	0.3169			
	PEAK DEM-COINCIDENT (KW)			$/ANNUM		
KWH/ANNUM				LIGHTS & APP	WATER HEAT	SPACE HEAT
1000	0.19	0.21	0.29	13.63	14.54	20.55
5000	0.97	1.03	1.46	68.16	72.69	102.77
10000	1.94	2.07	2.92	136.32	145.39	205.54
15000	2.91	3.10	4.39	204.48	218.08	308.31
20000	3.88	4.14	5.85	272.64	290.78	411.08
25000	4.85	5.17	7.31	340.80	363.47	513.85
30000	5.82	6.21	8.77	408.96	436.17	616.61
35000	6.79	7.24	10.24	477.13	508.86	719.38
40000	7.76	8.27	11.70	545.29	581.56	822.15
45000	8.73	9.31	13.16	613.45	654.25	924.92
50000	9.70	10.34	14.62	681.61	726.94	1027.69
	PEAK DEM. NON-COINCIDENT (KW)					
KWH/ANNUM						
1000	0.36	0.28	0.36	25.48	19.51	25.32
5000	1.81	1.39	1.80	127.41	97.55	126.59
10000	3.63	2.78	3.60	254.83	195.11	253.17
15000	5.44	4.16	5.40	382.24	292.66	379.76
20000	7.25	5.55	7.20	509.65	390.22	506.35
25000	9.06	6.94	9.01	637.07	487.77	632.93
30000	10.88	8.33	10.81	764.48	585.33	759.52
35000	12.69	9.72	12.61	891.89	682.88	886.11
40000	14.50	11.10	14.41	1019.30	780.44	1012.69
45000	16.32	12.49	16.21	1146.72	877.99	1139.28
50000	18.13	13.88	18.01	1274.13	975.55	1265.87

Minority Report - Dan Morin

LOW INCOME UTILITY CREDIT

By Dan Morin

The Low-Income Utility Credit program would make electricity more affordable for Puget Power's low-income customers and would ensure a steadier cash flow to the utility thereby reducing Puget's administrative costs. These administrative reductions would be seen as reduced numbers and associated costs of payment arrangements, overdue notices, disconnections, reconnections, and late or delinquent payments.

The purpose of this proposed program is to provide targeted assistance to Puget's most needy customers.

Based on a customer's verified average monthly income, a percentage of their annual electric costs could be deducted from their monthly bills. In other words, if a customer's annual electric costs are greater than a certain percentage of their income, the customer would be entitled to a credit which would be deducted from their actual bill. There would be no special rate involved.

The customer would receive all the appropriate price signals. The program would provide customers with incentives to do whatever they can to reduce consumption, and make their own bills more affordable. All program participants would be encouraged to participate in Puget Power's Weatherization Program, and in any other available programs designed to help reduce energy consumption and energy costs.

The general logistics of the program would work as follows. The percentages and numbers used are only for the purpose of an example. Experimentation with various models is needed to determine what numbers would actually be used.

A low-income customer would go to their local Energy Assistance provider. They would provide the agency with documentation of their income and an annualized statement from the utility. A determination would be made, based on the customer's verified income and their annualized heating costs. For example:

> If the customer's annual heating costs exceed 8% of their annual income, they would be eligible for the program. They would be awarded a "credit" which would be divided throughout the year. For demonstration purposes, let's say they are awarded a "credit" of $20.00 per month. As part of the program, the customer would go on a levelized payment plan (monthly billing). The $20.00 "credit" would be deducted from their bill every month. So, if their utility bill is $70, the $20.00 credit would lower their payment to $50.00. If the customer's usage increases, their credit would remain the same and they would be responsible for paying the difference.

When Energy Assistance funds are available, the Energy Assistance grant would be factored in before calculating the annualized amount. If the benefit reduced their bill below the percentage threshold, the household would not receive the utility credit.

Extremely low-income Puget Power customers cannot afford to pay their electric bills. The traditional collection methods are simply not effective or efficient because these customers lack income. Simultaneously, Puget's collection activities could be directed

towards those customers not identified as being low-income. Collection activities could then be targeted towards those better able to pay.

Under the new federalism established with President Reagan and continuing with President Bush's administration, and given the current federal/state budget problems, the federal thrust for assisting the poor is through local partnerships. It is appropriate for Puget to take the lead in developing a program that will assist Puget's less fortunate customers. This program is a vehicle that will attract federally leveraged money into the state. These federal dollars would otherwise go to other states where local utility partnerships are creating or having existing programs to meet the needs of low-income citizens.

Together, low-income advocates and utilities like Puget Power, could present to the Washington Utilities and Transportation Commission and to the State Legislature a program that, overall, is good social policy and good economic practice for Puget.

Minority Report - Fred Dullanty

Basic Charge Consideration

Fred Dullanty

As a minority report to my rate spread recommendations: Consideration should be given to basic charges on light bills. Consideration of various areas served -- the concentration of residences -- commercial and industrial. I believe too low in some cases.

Lessons Learned

1. This Task Force was organized too late in the rate case cycle to evolve sufficient expertise in all areas of interest and concern.

2. There was too much material to assimilate in the time available.

3. More material should have come at the start.

4. The materials should have been provided before the respective presentations/discussions.

5. The "Inventory of Handouts" was very helpful.

6. The process could have been served if each handout or source material had been assigned to a Task Force member who would be the information advocate and expert.

7. The tendency in the Task Force process was too heavily toward the technical. This often resulted in the "can't see the forest for the trees" syndrome. Although the Task Force did have talent for the technical, decisions were made dominantly on the basis of fairness and practicality.

Credits

Jim Heidell and Colleen Lynch provided staff support to the Task Force. They were heavily taxed for support and information -- beyond expectations. Both were pleasant, knowledgeable, and professional.

Jim Lazar gave a well-informed presentation and was a reliable source of information along the way.

Bruce Folsom put the "big picture" in perspective!

David Hoff provided a balanced view; even-handed, supportive, cooperative, encouraging, thoughtful, helpful.

Ruth Arnett: The Task Force members are eternally grateful for the full range of administrative support above and beyond her job.

Task Force Members: Individuals and team members, devoted to the mission despite the sacrifice of time and energy. These people possess the talent and expertise of a high-level strategic think tank and the human characteristics of a good and trusted friend. They're volunteers who care about the well-being of others -- they are there when you need them!

References

October 7, 1991
Puget Power 1990 Fact Book
Prior Consumer Panel Rate-Related Recommendations
NARUC Electric Utility Cost Allocation Manual

October 9, 1991
Task Force Charter & Overview--A Whirlwind Tour
WUTC Notice of Inquiry
Puget Power Fact Sheet on PRAM
Third Supplemental Order (Docket No. UE-901183-T)

October 16, 1991
Least Cost Integrated Resource Planning
Regulatory Reform for Puget Power: NOI, PRAM, Rate Design Collaborative
Rate Design Collaborative Meeting #1 Summary (Final)

October 30, 1991
Rate Information Brochure
Cost of Service: Theory & Framework; Traditional Approach; COS Model
1991 Competitive Resource Acquisition
Cold Snap Highlights, Customer Class Contribution, December 18-21, 1990
Section 2: Carrying Charges
Decoupling Sales and Profits: An Incentive Approach That Works
Profits & Progress Through Least Cost Planning

November 6, 1991
List of Acronyms
Residential Rate Comparison: Electric vs. Gas vs. Oil
Overview of Ratemaking Chart
Puget Power Rate Change Pamphlets, 10/91, Residential, Commercial
Rate Design Glossary
Schedule 91 & Avoided Costs
Consumer Recommendations; Update of the Least Cost Plan
Graphs of Lauckhart's 10/30 Presentation (12/21 Hourly Loads & Resources & Comparison of Actual Loads on 2/3 to Typical Day)
Common Rate Design Elements
Overview of Rate Design (Chapters 3-7 EPRI)
Inventory of Handouts

November 13, 1991
Documents from Jim Lazar, Public Counsel:
Areas of Disagreement on Cost of Service
Rate Structure Consumer Panel Presentation
Why is Puget Power Regulated?
Documents from D. F. Plummer
Issues to be Considered (Letter)
Life Cycle Cost Analysis Procedures for Statoil/Gas Production (distributed as requested)

November 20, 1991
WUTC Booklet "Rate Hearings Guide"
Task Force Membership List
Industrial Rates Letter from Will Brown
Task Force Process & Comments by J Young
Comparison of Washington Residential Rates
Cost of Service Ending 9/30/88
Class Profile Sheets

December 4, 1991
Rate Design Alternatives for Residential
Comments on Mac Gardiner's Draft 1
& Alternative Proposal
Task Force Members' Recommendations & Comments
Preliminary Rate Design Ideas from the Collaborative
Rate Design Task Force Memo/J Young
Pie Charts of COS by Class

December 11, 1991
Interim Report (Straw man Draft)/Mac Gardiner
Interim Report (Draft 1) Comments to Task Force Members/Mac Gardiner
Hookup Charges
Issues Recommended/Commented
Notes from December 11 Meeting
Update Memos/Hil Hornung
Forbes Magazine Article, "Wolf in Sheep's Clothing"

December 18, 1991
Alternative Rate Designs/Draft
Conservation & Rate Spread/Andre Cailliet
Cost Recovery of Conservation/R Afflerbach
Customer Outages/1981-1990 SAIDI Data
Industrial/Commercial

Interim Report (Straw Man Draft)/December 18/Mac Gardiner
Low-Income Utility Rate Program/Dan Morin
Minority Report for Residential Rate Subtopic of Task Force Report/Submittal of 1st Draft/D Plummer
Rate Spread/Karen Lorberau
Rate Spread Recommendation #4
Recommendations/J Young
2nd Block Rates as Function of 1st Block Rates
Time-of-Use Rates
Update/H Hornung

January 8, 1992
Interim Report
Analysis of 4th & 5th Alternative Rate Designs/draft

January 15, 1992
"A Fair Share Costing"/R Afflerbach