Workshop

March 31, 2016
9:00 a.m.

Board Members Present: Chair Laurie Ho, Larry Dill, Clyde Nakaya, Sherman Shiraishi and Mike Dahilig (entered at 9:09 a.m.).

Excused: Wallace Rezentes, Jr.

Staff Present: Manager and Chief Engineer Kirk Saiki, Marites Yano, Dustin Moises, Val Reyna, Eddie Doi, Keith Aoki, Jeff Mendez, Sandi Nadatani-Mendez, Kim Tamaoka, Carl Arume, Deb Peay, Jonell Kaohelaulii, Rose Navea, Fay Tateishi, Anne Parrott, Karen Delgado, Analyn Flores, Christine Erorita, Deputy County Attorney, Andrea Suzuki

Guests: Raftelis Financial Consultants, Mr. Sudhir Pardiwala, Ms. Hannah Phan, Ms. Nancy Kanna, Kaua‘i Board of Realtors

AGENDA
Mr. Dill moved to approve the Agenda as circulated; seconded by Mr. Nakaya; with no objections motion carried with 4 ayes.

NEW BUSINESS
1. Rates 101 - Utility Management Workshop presented by Raftelis Financial Consultants, Inc. included the following topics:
   a. Rate Study Approach
   b. Financial Plan
      i. Financial Policies – Debt and Reserves
   c. Cost of Service Analysis
   d. Rate Structure Alternatives
      i. Current Customer Characteristics
   e. Pricing Objectives Exercise

BACKGROUND:
Mr. Sudhir Pardiwala is the Project Manager with Raftelis Financial Consultants for 11 years and practiced for over 30 years. Ms. Hannah Phan is the lead consultant who developed the rate study model.

At 9:09 a.m., Mr. Dahilig entered the meeting.

Developing rates was covered as well as the rate study objectives, how to conduct the study in general, and policies in pricing objectives in the rate study.

At 9:16 a.m., Mr. Dahilig exited the meeting.

The Financial Plan is the revenue adjustments needed and what the rate increase would look like. Cost of Service Analysis identifies the cost that should be allocated to different customer classes by meters. The rate study would determine the needs to meet equity and fairness requirements for all customers.

At 9:20 a.m., Mr. Dahilig re-entered the meeting.
(Please refer to the comments from the updated Rates 101 PowerPoint presentation on slides – 18, 53, 54, 56, 58 & 59.)

Respectfully submitted,

Edie Ignacio Neumiller
Commission Support Clerk

Approved,

Sherman Shiraishi
Secretary – Board of Water Supply
OUTLINE

» Overview of a Rate Study
  » Objectives of a Rate Study
  » Rate Study Approach
  » Rate Setting Principles: Financial Goals and Pricing Objectives
» Financial Plan Development
» Cost of Service Allocation
» Rate Design
» Q&A
OBJECTIVES OF A RATE STUDY

Main Objective:
» Recovery of full revenue requirement in a fair and equitable manner

Other Underlying Objectives:
» Effectiveness in yielding full cost recovery
» Stability of rates to deal with unexpected and adverse changes
» Defensibility and compliance with legal regulations
» Fairness of rates amongst different ratepayers
» Avoidance of undue discrimination (subsidies) within the rates
» Simplicity and ease of understanding and administration
» Promotion of efficient water use
## COMMON PRICING OBJECTIVES

<table>
<thead>
<tr>
<th>Conservation</th>
<th>Funding</th>
<th>Affordability</th>
<th>Cost and Allocation</th>
<th>Administration</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Reduce total annual demand</td>
<td>- Ensure financial sufficiency</td>
<td>- Minimize customer supply variability</td>
<td>- Allocate water supply equitably</td>
<td>- Allow cost-effective administration</td>
</tr>
<tr>
<td>- Reduce water waste</td>
<td>- Enhance revenue stability</td>
<td>- Provide incentives</td>
<td>- Provide conservation incentives</td>
<td>- Allow easy implementation</td>
</tr>
<tr>
<td>- Reduce peak demand</td>
<td>- Provide funding mechanisms for alternative water supply</td>
<td>- Cost rules that provide affordable water for essential uses</td>
<td>- Allocate capital cost equitably</td>
<td>- Enhance customer understanding</td>
</tr>
<tr>
<td>- Reduce outdoor water usage</td>
<td>- Conservation program</td>
<td>- Comply with government regulations and guidelines</td>
<td>- Billing system capability</td>
<td></td>
</tr>
</tbody>
</table>

Some Pricing Objectives conflict with others and there needs to be a balance.

FINANCIAL GOALS

» To ensure financial sufficiency
» To manage and mitigate risks
» To minimize rate fluctuations
» To achieve/maintain a certain credit rating
FINANCIAL CHALLENGES OF MANAGING A WATER SYSTEM

1. Property of utility system
2. Capital intensive
3. Highly fluctuating capital cost
4. Unreliable
5. Increasing regulations
6. Political/acceptance issues
7. Water quality
8. Availability
9. Environmental regulations
FINANCIAL PLAN DEVELOPMENT
WHY FINANCIAL PLANNING?

Financial Sufficiency for the Short- and Long-Term
» Operating expenses
» Anticipated capital expenditures

Preparation for the Future
» Identify known facts and variables
» Anticipate unknown variables and evaluate associated risks

Tool for Agencies
» Minimize rate fluctuations from year to year
» Develop and assess financial policies, budget goals and objectives
FINANCIAL HEALTH INDICATORS

Reserve Requirements
- Operating -- funds used to meet working capital requirements
- Rate Stabilization -- funds used during periods of revenue shortages
  - Probability analysis required to determine the appropriate reserve levels
- CIP Reserves -- Funding requirements to award contract and variances from estimated costs
- Emergency -- funds available in case of asset failure
  - Critical asset replacement analysis is required to determine the appropriate reserve level

Coverage Ratio Requirements
- Exceed Official Statement requirements
- Achieve / Maintain good credit ratings
- If there is no debt, what is your debt capacity?
  - How much debt are you able to issue with your current rates?
OVERVIEW OF FINANCIAL POLICIES

Goals of Financial Policies

» To mitigate risk due to
  -- Rate / revenue instability
  -- Emergency with asset failure
  -- Volatility in working capital

» To achieve/maintain a certain credit rating

» To determine when to issue debt

(At 9:30 a.m., Mr. Nakaya exited the meeting.)
OVERVIEW OF FINANCIAL POLICIES

Importance of Financial Policies

» To maintain financial solvency
  
  — Provide a basis for coping with fiscal emergencies (revenue short-falls, asset failure, emergency, etc. ...)

» To provide guidelines for sound financial management with an overall long-range perspective

» To enhance financial management transparency
  
  — Improve public's confidence and elected officials' credibility
CREDIT RATING CRITERIA
ON LIQUIDITY

» Unrestricted cash balances available to meet working capital needs
  › Unrestricted cash balances include all cash and investments dedicated for working capital, rate stabilization or R&R needs

» Criteria — measures in Days Cash
  › Days Cash = Unrestricted balances / average daily O&M expenses for the year
Debt Coverage Requirements

Debt Coverage = Net Revenues * / Debt Service

Criteria used by Standards & Poor's (S&P) for credit ratings:
- Insufficient <1.00x
- Adequate 1.01x to 1.20x
- Strong 1.21x to 1.60x
- Very Strong >1.60x

\[ Net \text{ Revenues} = \text{operating revenues} - \text{operating expenses} \]

(At 9:35 a.m., Mr. Nakaya re-entered the meeting.)
MARKET VOLATILITY AFFECTS THE PREMIUM
» Emergency Reserve Fund (ERF)
  › Purpose: to be used during emergencies or disasters, not for normal business purposes
  › Set to 25% of Total Operating Expenses Budget, excluding interest and non-cash expenses

» Debt Service Reserve Fund (DSRF)
  › Purpose: to service outstanding debt
  › Set to 50% of the upcoming fiscal year’s debt service requirement
INDUSTRY POLICIES

» Operating Reserve
  » Typically 30 to 90 days of operating expenses

» Rate Stabilization Reserve
  » Typically 10 to 20 percent of rate revenue

» Capital Reserve
  » Typically 100% of replacement CIP

» Emergency Reserve
  » Based on mitigating failure of critical asset cost

Mr. Dill inquired how the policies compare to the Hawai‘i industry? Mr. Pardiwala said this would be discussed with the Board and staff at the next rates meeting.
PROJECTING REVENUES

» Historical data as a basis for projecting future revenues

» Projection considerations:
  › Growth in accounts and usage
  › Price elasticity
  › Weather / conservation normalization
  › Nonrecurring revenues: grants, rebates
WATER SYSTEM COST STRUCTURE

FIXED
- Plant and equipment cost
- Property taxes
- Insurance
- Salaries of management
- Interest charges

VARIABLE
- Variable cost of water
- Salaries
- Insurance
- Depreciation
- Interest charges
- Supervisory per diem
- Scopes of work
- Vendor charges
- Maintenance costs
- Total costs
WATER SYSTEM COST STRUCTURE

Fixed Costs are High

75 to 90%
of total annual costs

Variable Costs are Low

10 to 25%
of total annual costs
WATER SYSTEM COST AND REVENUE CONUNDRUM

FY 2015 Operating Budget

Total operating budget = $17,055,117*
*includes debt service payments

FY 2015 Revenues

Total rate revenue = $20,075,123*
*includes public fire revenues
WATER SYSTEM COST AND REVENUE CONUNDRUM

SALES REDUCE BY 25%

REVENUES REDUCE BY 25%

VARIABLE

REVENUES

EXPENSES

FIXED

VALUE NEEDED TO MAKE UP LOSS
OPTIONS TO INCREASE FINANCIAL STABILITY

- Reduce unnecessary expenditures
- Increase rates
- Redesign rates
- Access external capital
  - Borrow money
  - Use others' credit
<table>
<thead>
<tr>
<th>ADVANTAGES</th>
<th>DISADVANTAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>» Cheaper short-term option relative to rate-funded financing</td>
<td>» More costly (in absolute dollars) in the long term, relative to rate-funded financing</td>
</tr>
<tr>
<td>» Provides intergenerational equity</td>
<td>» Obliges the agency to maintain minimum revenue/liquidity levels for debt coverage requirements</td>
</tr>
<tr>
<td>» Far less impactful on current ratepayers</td>
<td></td>
</tr>
<tr>
<td>» Historically low interest rate environment</td>
<td></td>
</tr>
</tbody>
</table>
PROJECT APPROACH
FINANCIAL PLAN APPROACH
PROJECTING O&M EXPENSES

» Historical data as basis for projections
  › Actual (CAFR), Estimated or Budget

Projection Considerations:
» Inflations: salary, benefits, energy, general, etc.
» Water supply portfolio changes
» Growth
» Non-recurring O&M expenses
» Interdepartmental O&M expenses
COST OF SERVICE ALLOCATION
WHAT IS COST OF SERVICE?

» The method to recover costs from users in proportion to their use of the system, recognizing the impact of each class on system facilities and operations

» A cost-based process of converting revenue requirements into unit costs

» Allocation of cost of service to customer classes is based on customer usage characteristics

» Cost of service is the fundamental benchmark used to establish utility rates in the United States
Rationale:

» Different types of customers generate different costs because their patterns of use or characteristics are different

» Cost of service allows the matching of rates charged to each group with the costs of serving them

» Each group will “pay its own way”; no subsidies
COST OF SERVICE ALLOCATION PROCESS
AWWAMANUAL M16THEDITION

» Identify annual revenue requirements by function or activity
» Allocate these functionalized costs to appropriate cost causation components
» Determine customer class characteristics
» Develop unit costs for each cost component
» Distribute costs to customer classes
Cost Causation Components

- Base Water Supply: Variable costs that vary with total quantity of water used
- Base Delivery: O&M expenses and capital costs associated with service to customers under average load conditions (base use)
- Peaking (or Extra Capacity) Costs: costs associated with meeting peak demand rate of use in excess of base use
  - Max day extra demand
  - Max hour extra demand
- Meter Maintenance: maintenance and capital costs related to meters
- Customer Services: costs associated with serving customers, irrespective of the amount or rate of use
  - Meter reading, billing, customer accounting, customer service, collecting expense
- Fire costs that apply solely to the fire protection function
  - Fire hydrants
  - Related branches, mains and valves
STEP 2: ALLOCATING FUNCTIONALIZED COSTS TO COST CAUSATION COMPONENTS

Base Water Supply

Residential

Food Production

Industrial

Functional Costs

Service Delivery

Government

Customer Service

Peak Demand
Peaking factors:
- Indoor Use: lower peaking factors
- Outdoor Use: higher peaking factors
- Commercial / Industrial: lower peaking factor

Peaking factors by customer class are used to distribute peaking costs to each class.
**EQUIVALENT METER RATIOS**

» Meter service costs can be distributed to customers in proportion to the investment in meters and services installed (i.e. meter costs)

» Capacity (Peaking) related costs can be distributed to customers in proportion to the hydraulic capacity of installed meters

<table>
<thead>
<tr>
<th>Size</th>
<th>Factor</th>
<th>Base Load</th>
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</thead>
<tbody>
<tr>
<td>1/2 in</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>3/4 in</td>
<td>1.1</td>
<td>1.1</td>
</tr>
<tr>
<td>1 in</td>
<td>1.4</td>
<td>1.4</td>
</tr>
<tr>
<td>1 1/4 in</td>
<td>1.2</td>
<td>1.2</td>
</tr>
<tr>
<td>1 1/2 in</td>
<td>2.0</td>
<td>2.0</td>
</tr>
<tr>
<td>2 in</td>
<td>2.9</td>
<td>2.9</td>
</tr>
<tr>
<td>3 in</td>
<td>5.0</td>
<td>5.0</td>
</tr>
<tr>
<td>4 in</td>
<td>10.0</td>
<td>10.0</td>
</tr>
</tbody>
</table>

*From AWWA Manual M22: Size Water Lines and Meters*
For Each Customer Class:

» Annual Usage or Base Units
» Max Day Units
  › Extra Capacity Max Day Units
» Max Hour Units
  › Extra Capacity Max Hour Units
» Customer Units:
  › Number of bills
  › Equivalent meters
STEP 4: DEVELOP UNIT COSTS OF SERVICE FOR EACH COST COMPONENT
STEP 5: DISTRIBUTE COST COMPONENTS TO CUSTOMER CLASSES

CUSTOMER CLASSES (Cost to Serve Each Class)
(Single Family, Multi Family, Commercial, etc.)
RATE DESIGN
RATE DESIGN

» Common Pricing Objectives
» Existing Water Rates
  » Customer Data Analysis
» Alternative Water Rate Structures
  » Simple to understand and administer
  » Billing system capability
» Revenue Stability Options
<table>
<thead>
<tr>
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<td>Enhancing revenue stability</td>
<td>Maintaining customer impacts</td>
<td>Allocating water supply</td>
<td>Allocating cost-effective administration</td>
</tr>
<tr>
<td>Reducing water waste</td>
<td>Ensuring financial sufficiency</td>
<td>Maintaining low average customer bills</td>
<td>Providing conservation incentives</td>
<td>Allowing easy implementation</td>
</tr>
<tr>
<td>Reducing peak demand</td>
<td>Providing funding</td>
<td>Allocating capital costs</td>
<td>Complying with system capability</td>
<td>Recharging customer understanding</td>
</tr>
<tr>
<td>Reducing outdoor water usage</td>
<td>Fundraising mechanisms for alternative water supply</td>
<td>Encouraging affordable water for essential uses</td>
<td>Complying with government regulatory guidelines</td>
<td></td>
</tr>
</tbody>
</table>

BALANCING COMPETING PRICING OBJECTIVES

- Revenue Stability
- Affordability
- Financial Stability
- Customer Conviction
- Availability
- Employee Understanding
# EXISTING WATER RATES

- Monthly service charge + 4-tier consumption rate
- Tiers are based on meter size
- Agriculture customers have uniform rate of $2.20/kgal

<table>
<thead>
<tr>
<th>Monthly Tiers (Kgal)</th>
<th>No. of Meters</th>
<th>Service Charge</th>
<th>Tier 0 Min</th>
<th>Tier 1</th>
<th>Tier 2</th>
<th>Tier 3</th>
<th>Tier 4</th>
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<tr>
<td>5/8&quot;</td>
<td>20,784</td>
<td>$17.75</td>
<td>1</td>
<td>7</td>
<td>14</td>
<td>18</td>
<td>18+</td>
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<tr>
<td>3/4&quot;</td>
<td>108</td>
<td>$24.75</td>
<td>2</td>
<td>29</td>
<td>57</td>
<td>65</td>
<td>65+</td>
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<tr>
<td>1&quot;</td>
<td>211</td>
<td>$36.50</td>
<td>3</td>
<td>68</td>
<td>137</td>
<td>175</td>
<td>175+</td>
</tr>
<tr>
<td>1 1/2&quot;</td>
<td>209</td>
<td>$65.50</td>
<td>10</td>
<td>169</td>
<td>337</td>
<td>387</td>
<td>387+</td>
</tr>
<tr>
<td>2&quot;</td>
<td>199</td>
<td>$100.00</td>
<td>12</td>
<td>400</td>
<td>750</td>
<td>925</td>
<td>925+</td>
</tr>
<tr>
<td>3&quot;</td>
<td>53</td>
<td>$181.00</td>
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<td>600</td>
<td>1,200</td>
<td>1,750</td>
<td>1,750+</td>
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<tr>
<td>4&quot;</td>
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<td>$257.00</td>
<td>125</td>
<td>1,000</td>
<td>2,500</td>
<td>2,750</td>
<td>2,750+</td>
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<td>6&quot;</td>
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<td>$589.00</td>
<td>225</td>
<td>4,000</td>
<td>7,500</td>
<td>10,000</td>
<td>10,000+</td>
</tr>
<tr>
<td>8&quot;</td>
<td>56</td>
<td>$841.00</td>
<td>250</td>
<td>1,000</td>
<td>2,500</td>
<td>2,500</td>
<td>2,500+</td>
</tr>
<tr>
<td>Meter Size</td>
<td>Usage (kgal)</td>
<td>Number of Meters</td>
<td>Average Monthly Use (kgal)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>5/8 inch</td>
<td>2,160,717</td>
<td>20,784</td>
<td>9</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>3/4 inch</td>
<td>48,851</td>
<td>108</td>
<td>38</td>
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<td></td>
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<td>211</td>
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<td>273,491</td>
<td>209</td>
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<td>2 inch</td>
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<td>199</td>
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<td>343,110</td>
<td>53</td>
<td>539</td>
<td></td>
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</tr>
<tr>
<td>4 inch</td>
<td>200,570</td>
<td>40</td>
<td>418</td>
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<td>6 inch</td>
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<td>59</td>
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<td>8 inch</td>
<td>82,843</td>
<td>56</td>
<td>123</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>4,062,272</td>
<td>21,719</td>
<td>15</td>
<td></td>
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</tbody>
</table>
Information Technology Specialist, Ms. Nadatani-Mendez said the Low Rise Residential category was part of an old billing system; some categories may not be correct. Some of the Government categories could be under Single Family. Categories are currently being corrected because there were a lot of accounts. Mr. Dahlilig asked if the Hotel/Resort category included vacation rentals? He requested research be done to parse out single family vs. single family vacation rentals. Planning Department could provide permitting information to assist with the research. Chair Ho commented water usage would go up with single family vacation rentals. These could be second homes. Mr. Pardiwala said it depends if single family vacation rentals are year round seasonal. (At 10:37 a.m., Mr. Shiralshi exited the meeting.) Mr. Dahlilig suggested to redo the rate structure by type of user as part of the adjustment on the rate policy. Hotel/Resort usage within single family areas could be helpful. (At 10:40 a.m., Mr. Shiralshi reentered the meeting) Chief of Water Resources & Planning, Mr. Dol said input on the classification may have or may not have included the category. Ms. Phan added if there is a rate structure by customer class, she would make sure the classification data is correct. Ms. Ho referred to big discrepancies in the charts on the residential rate based on equity.
Mr. Dill asked what is in the ag rate subsidy industry through customers? Mr. Pardiwala commented that the Department regulations has the ability to set ag rates which could be subsidized by other users as a policy. Marijuana growers cannot get an ag rate subsidy. Deputy County Attorney, Andrea Suzuki added that the Department is not regulated by PUC regulations but with the Hawai’i Revised Statues (HRS) 54. Chair Ho is the President of the Kaua’i County Farm Bureau and commented that ag water is subsidized. She would like to know how many ag customers are there. To her knowledge, there are very few ag customers.
OTHER CRITERIA TO CONSIDER

» Should rate structures be simple to understand and administer?
  › If so, rate structures such as uniform rate and tiers by customer class may be more desirable

» Mitigate customer impacts?
  › Leave rate structure unchanged

» What is the current billing system capability?
  › If it's not capable of change, then alternative rate structures are not possible
Mr. Dahilig asked if the Department's system could capture peak usage and to charge appropriately? Manager Saili answered that the information could be taken off Operation's Supervisory Control & Data Acquisition (SCADA) to differentiate the peak from a multi-family residence. Ms. Nadatani-Mendez mentioned the Beacon transponders can determine peak usage and is included in the proposed upcoming budget. It was noted that peak usage usually happens in April, May or August which could be from the tourist traffic.
LAST STEPS OF WATER RATE STUDY

Report Development
- Document the support / justifications for the rates
- Convey the "story" behind the rates to customers in layman's terms
- Connects the budget with the rates and shows the math on how the rates are developed

Public Outreach
- Proactive outreach and messaging to educate key stakeholders about the new rates

Implementation
- Develop phase-in implementation strategy
- Test billing system
- Train customer support staff about new rates
The Board and staff will complete the Pricing Objectives on the priority rates and structure. The results will be prioritized for the rate structure. The 9 Pricing Objectives are:
1) Equability/Cost of Service Based Allocations, 2) Minimization of Customer Impacts, 3) Rate Stability, 4) Affordability, 5) Simple to Understand & Explain, 6) Administrative Ease of Implementation, 7) Revenue Stability, 8) Conservation, & 9) Agriculture Subsidy.
In May, Raftelis Financial Consultants will meet with the Board and staff to go over the results of the rate study and objectives. Mr. Dill confirmed that the Board has the final approval of the rate structure but would like to hear the staff's results as well.