Summary Title: Gas Purchasing Strategy

Title: Proposed Change to the Gas Purchasing Strategy to Implement a Market-based, Monthly-adjusted Gas Supply Rate

From: City Manager

Lead Department: Utilities

Recommendation

Staff recommends that the Finance Committee recommend the City Council direct staff to develop market price-based, monthly-adjusted gas supply rates.

The Utilities Advisory Commission (UAC) did not support staff’s recommendation and, instead, recommends that the City Council adopt a rate objective of annually-adjusted gas supply rates limited to a maximum rate change of 20% per year.

Executive Summary

For 10 years, a portion of Palo Alto’s residential and small commercial customer gas needs have been met through purchases at fixed and capped prices. While this strategy was successful in achieving relatively stable gas supply costs, the downside is that, during times of declining market prices, Palo Alto’s costs and resulting rates are higher than Pacific Gas and Electric’s (PG&E’s) gas supply rates, which change on a monthly basis mirroring the fluctuating market price of gas. Staff now proposes to change to a monthly market-based gas supply rate. Gas distribution rates will continue to remain stable month-to-month and will change only as needed (at most annually) as in the past. The change will reduce the need for financial reserves, eliminate the current gas purchasing strategy, and save on staff time.

Staff asked the UAC to recommend to Council market-based, monthly-adjusted gas supply rates for Palo Alto. The UAC, instead, recommends an annual, not monthly, gas supply rate change with a goal that supply rates would change by no more than 20% annually.
Background

History of Palo Alto Gas Supply Rate Stabilization
Prior to the 2001 energy crisis, the City of Palo Alto Utilities (CPAU) engaged in very little, and only short-term, gas commodity hedging. Hedging is a risk management strategy used to achieve a level of cost stability despite fluctuations in commodity prices. The energy crisis sent market prices soaring, and CPAU’s largely unhedged gas portfolio experienced soaring gas supply costs that drained $9 million from the Gas Supply Rate Stabilization Reserve (G-SRSR) and required four retail rate increases in fiscal year (FY) 2001 (15%, 25%, 35% and 67%).

In direct response to the financial pain caused by gas rate increases experienced during and after the energy crisis, staff developed a hedging strategy known as the gas laddering strategy in April 2001 whereby a portion of CPAU’s gas needs would be purchased at fixed- and capped-prices over a 36-month time horizon. The goal of this purchasing strategy was to smooth or stabilize gas supply costs relative to the extremely volatile spot market. The laddering strategy was revisited with the UAC and with the City Council in 2004 and again in 2008. The gas laddering strategy has been used to manage the volatility of gas costs for the “pool”, residential and small commercial customers. CPAU’s eight largest customers manage their own gas supply costs by electing either a monthly spot-market-based supply rate, a fixed rate for 12 or 24 months, or a custom rate. All of these large customers are currently on the spot-market-based supply rate, which changes on a monthly basis.

In late 2007, market prices again spiked, more than doubling in eight months. In the summer of 2008 the credit crisis combined with increased gas supply from new shale developments sent market prices plummeting. As anticipated in a falling market, CPAU’s average gas supply cost remained stable and was higher than wholesale market prices, and CPAU’s supply rates did not fall as fast as PG&E’s comparable rates because some fixed-price gas was purchased prior to the market price decline.

As part of the development of the Utilities Strategic Plan, staff conducted interviews with 26 influential community members. The interviews took place in August and September 2010, and interviewees included current and former UAC and Council members. Staff asked interviewees about the value of stable versus competitive gas rates, and all of those asked were either indifferent to, or supportive of, gas rate stability.

Recent UAC/Finance/Council Review and Actions
In September 2009 staff presented to the UAC a gas purchasing strategy review emphasizing the relationship between the stable rate objective, the gas commodity purchasing strategy, and the reserve guidelines. This was followed by a discussion in June 2010 during the development of the Gas Utility Long-term Plan (GULP). Staff presented information comparing variable market-based versus stable rate objectives. The UAC asked whether market-based rates would have a positive influence on encouraging energy efficiency (EE). The UAC also asked about evidence indicating customers’ attitudes toward rate stability.
In July 2010 staff returned to the UAC with draft GULP Objectives and Strategies and additional information regarding stable rates. Staff reported finding no statistical support for fluctuating market rates impacting EE. Also cited was the most recent customer satisfaction survey which did not reveal an issue with gas rates although the stable versus competitive rate question was not asked directly of customers in that survey. Staff presented additional analysis of a laddered purchasing strategy versus buying gas on the spot market, showing the trade-offs between the two purchasing strategies, and promised a review of the gas rate objective as part of the Utilities Strategic Plan.

In October 2010 the UAC recommended the proposed GULP Objectives, Strategies, and Implementation Plan for Council approval, and in November 2010 staff sought Finance Committee approval of the same (CMR:400:10). The Finance Committee requested more explicit language regarding review of laddering strategy, and in December 2010 staff returned to the Finance Committee (CMR:432:10) with an additional explicit GULP implementation step to review the laddering strategy with the UAC. In March 2011, Council approved GULP (Staff Report 1313) including the initiative to review the gas laddering strategy.

The Council-approved portfolio management-related GULP objective and implementation plan initiatives are:

Objective #1: Balancing Stability and Competitiveness
GULP Strategy #1: Balance supply cost stability with market exposure by:
   a. Diversifying energy purchases for the pool across commitment date, delivery date, duration, suppliers, pricing terms and delivery points;
   b. Leaving some fraction of the forecasted gas pool needs exposed to near-term market prices; and
   c. Avoiding long-term (>10 years) fixed-price commodity contracts.

Implementation Plan Tasks:
   1. Continue to implement a laddered commodity purchasing strategy for the pool.
   2. Review the laddering strategy and rate stability with the UAC and recommend changes, if appropriate.

Meanwhile, staff presented the Utilities Strategic Plan to the UAC in January 2011. The retail gas rate objective was questioned by the UAC since the gas laddering strategy review under GULP had not yet occurred. Staff returned to the UAC in February with an initiative to “reassess the gas portfolio laddering purchasing strategy” in lieu of specifying a retail gas rate objective. At that meeting, the UAC recommended Council approve the Strategic Plan. The Utilities Strategic Plan was approved by Council on July 25, 2011.
The Utilities Strategic Plan contains the following strategic initiative related to the gas laddering strategy:

Reassess the gas laddering purchasing strategy and develop a rate change performance measure for gas service.

**Discussion**

**Gas Commodity Market Prices and Volatility**

Energy market prices are inherently unpredictable and volatile. Prices move to balance supply and demand. Market prices reflect market participants’ short- and long-term views. Many fundamental changes can drive natural gas prices higher including, but not limited to, factors such as global economic recovery, a dramatic switch from coal-fired and/or nuclear to gas-fired electric generation driven by Federal greenhouse gas (GHG) regulation, a determination that shale gas produced from hydraulic fracturing is environmentally troublesome, significant development of liquefied natural gas export capacity, and a shift in drilling from low-priced gas to high-priced oil. Conversely, a sluggish global economy, stagnated Federal GHG regulation, or continued aggressive shale drilling may result in weaker natural gas market prices.

Completely unpredictable events can drastically change the market outlook in a very short period of time. Extreme temperatures can have a short-term impact on prices. Events like hurricanes can have a short- or long-term impact on prices depending on the disruption of natural gas production and/or the destruction of demand such as the shut down of refineries or other large industrial gas users. Other events, like the rapid increase in supply from shale production and overall economic activity, can have a long-term impact on market prices.

**Gas Supply Rate Objective**

The pertinent question that needs to be answered is not whether market prices will go up or down. The pertinent question is, “What is CPAU’s gas supply rate objective?” Staff recommends a market-based gas supply rate objective. To meet that objective, implementation will include new purchasing strategies, financial reserve management guidelines and supply rate-setting methodologies. Specifically, the change calls for the following to occur:

1. The commodity purchasing strategy will be to purchase all pool gas needs in the monthly and daily spot markets instead of buying gas in the forward market;
2. Implementation of monthly-adjusted gas supply rates for the pool; and
There are several reasons for staff’s recommended policy and strategy change:

1. CPAU’s gas costs, over the long-run, will be approximately equal to the market cost regardless of the hedging strategy;
2. CPAU’s gas supply rates will closely compare to PG&E’s floating gas supply rates;
3. Gas bills vary dramatically seasonally due to gas usage much more than they vary due to the gas supply rate;
4. Market-based gas rates are more likely to complement the state of the overall economy;
5. The need for financial reserves will be reduced;
6. Staff time can be saved by eliminating the laddering strategy.

Because Palo Alto does not own any natural gas reserves or production, all of CPAU’s gas needs must be met through purchases on the open market. While it is possible to smooth out the peaks and valleys of the volatile spot market using a hedging strategy, and it is possible to use reserves to keep rates more stable, the average portfolio cost over the long-run will be approximately equal to the market price. From July 2001 through June 2011, the monthly market price for gas ranged from $1.80 to $12.57 per million British Thermal Units (MMBtu, which is equal to 10 therms) with an average price of $5.65 per MMBtu. Over that same period, CPAU’s monthly gas cost ranged from $3.52 to $10.45 per MMBtu with an average cost of $6.32 per MMBtu. While the range of costs was narrowed by hedging, the average cost was within about 12% of the average market price. Attachment A provides additional analysis of hedging strategies.

If CPAU ceases gas commodity hedging and no longer uses reserves to stabilize rates, customers would bear the full brunt of market price increases and receive the full enjoyment of market price dips, and CPAU’s rates will never be out of step with the natural gas market. The market price signals will be passed immediately on to the customers.

Second, customers and policy makers inevitably compare CPAU’s gas supply rates and PG&E’s gas supply rates. PG&E’s gas supply rates are based on a monthly weighted average cost of gas which closely follows the monthly spot market. Since PG&E’s gas costs fell below CPAU’s stable gas costs, the gas laddering strategy has received increased attention from the UAC, the Council, and the community. Although GULP does not include an objective to be competitive with PG&E’s gas supply rates, having gas supply costs higher than PG&E’s is clearly problematic for the community.

Third, while it is true the laddering strategy smoothes out the cost of gas over time and results in relatively more stable gas supply rates, the average monthly customer bill is anything but stable. The main driver for the customer bill is weather which results in high or low gas usage.
Figure 1 shows an average CPAU residential customer monthly bill and a bill for the same usage using PG&E’s residential rates\(^1\). Despite CPAU’s stable rate and PG&E’s rate that changes on a monthly basis, the average customer’s bill is not stable at all in either service area. In both areas, residential bills are substantially higher in the winter months when gas use is high. Figure 2 shows the differences between the annual bills for average residential gas usage using CPAU’s and PG&E’s residential retail gas rates.

\(^1\) Average bills are calculated using the monthly average gas usage for the period from July 2009 through June 2011.
Fourth, market-based gas rates are more likely to complement the state of the overall economy. During and in the period after an economic recession, when consumers have less money to spend, natural gas prices tend to be lower. When the economy is booming and consumers have more money to spend, natural gas prices tend to be higher. With a hedged portfolio, the opposite is true making higher rates more painful because those higher rates are likely to occur during economic downturns and when the economy is struggling to recover. Figure 3 shows monthly spot gas prices from 1995 through May 2010 and when the last two economic recessions occurred.
Fifth, eliminating the stable rate objective will greatly reduce the need for financial reserves. Funds are withdrawn from the Gas Supply Rate Stabilization Reserve (G-SRSR) to mitigate gas costs increases, and the reserve is replenished during low gas cost periods. If CPAU changes to monthly varying market-based rates, reserves will be needed only for short-term revenue and cost balancing. Modification to the G-SRSR guidelines would be appropriate. The current reserve guidelines are to maintain between 25% and 50% of the supply purchase cost in the G-SRSR. More information regarding the use of reserves for rate stabilization is provided in Attachment A.

Lastly, the estimated staff time required to implement the laddering strategy is about 0.4 full-time equivalents (FTEs) that could be redeployed in the long-term. However, in the short-term, resources would be needed to implement the new purchasing and rate strategies including implementing procedures to update the gas supply rate on a monthly basis, revising the rate schedules, revising the reserve policy, revising GULP, and communicating the rate changes to customers.
Alternatives

Two parameters can be used to measure rate stability: (1) the frequency of rate changes (e.g. monthly, annually, every two years) and (2) the magnitude of the rate change (e.g. 10%, 50%, no limit). The desired level of overall rate stability defines how the supply portfolio should be managed. Staff’s proposal reflects the least stable alternative: monthly rate changes in line with spot market prices. There is a continuum of alternatives with less frequent rate changes and/or a specified cap on rate change magnitude. Greater rate stability will require more aggressive hedging and/or larger reserves.

Commission Review and Recommendations

On July 20, 2011 staff asked the UAC to recommend the City Council direct staff to develop market price-based, monthly adjusted gas supply rates. The UAC commissioners engaged in a lengthy discussion covering topics such as staff time saved by eliminating the laddered hedging strategy, the relationship between rate stability and energy efficiency, bill payment plans for low income customers, and the advisability of being competitive with PG&E’s supply rates.

In general, the UAC was uncomfortable with monthly changing gas supply rates and indicated that customers value rate stability. The UAC did, however, also acknowledge the downside of a portfolio that is out of synch with economic cycles and PG&E’s gas supply rates which closely mimic the monthly spot market. Several commissioners expressed support for a gas hedging ladder shorter than 36 months. Rather than specifying a laddering period, staff urged the UAC to propose a gas supply rate objective and explained that staff would then be able to design a purchasing and reserve strategy to meet that objective.

A motion made to reject staff’s recommendation and instead recommend an objective of adjusting gas supply rates once per year and by no more than 20% at a time, with the mix between laddering and reserve levels to be determined by staff. The motion passed unanimously (6-0 with Commissioner Cook absent). An analysis and potential implementation plan for the UAC recommendation is provided in Attachment B. Draft excerpted notes from the UAC’s July 20, 2011 meeting are provided as Attachment C.

Next Steps

If Council approves the proposed change in policy, staff will develop an implementation plan and timeline. Steps will include:

1. Develop systems to implement monthly market-based supply rates;
2. Revise the G-SRSG guidelines;
3. Develop a new gas commodity purchasing plan;
4. Update relevant sections of GULP;
5. Establish timeline for rate roll-out; and
6. Conduct customer outreach and communication.

To implement the change, staff will return to the UAC requesting recommendations to Council for changes to the gas retail rates, changes to the G-SRSR guidelines and changes to GULP.

Resource Impact
Short-term resources will be required for implementation of the new gas commodity purchasing and rate strategy. Long-term, 0.4 FTE are expected to be redeployed from gas portfolio management to other projects. This savings includes small amounts of time spread across multiple individuals in Utilities and Administrative Services.

Policy Implications
Approval of staff’s recommendation or the UAC’s recommendation would result in a change in practice and would necessitate future changes to Council-approved Gas Supply Rate Stabilization Reserve guidelines.

Environmental Review
Changes to the gas supply objective or gas purchasing strategy does not meet the definition of a project pursuant to Section 21065 of the California Environmental Quality Act (CEQA). Thus, no environmental review is required.

Attachments:
- Attachment A: Gas Laddering Strategy Analysis (PDF)
- Attachment B: Utilities Advisory Commission Recommendation Implementation (PDF)
- Attachment C: Excerpted Final Special Minutes of July 20, 2011 UAC Meeting (PDF)
Gas Laddering Strategy Analysis

Laddering Strategy Parameters and Current Status
Since its inception in 2001, the City of Palo Alto Utilities (CPAU’s) gas laddering strategy structure has remained largely unchanged. While the time horizon was extended from 36 months to 5 years in 2009, hedging targets beyond 36 months have always remained at 0%. The portfolio planning periods within the 36-month ladder have numbered from 3 to 4 and have ranged in length from 9 to 18 months. The most recent minimum and maximum hedge targets are shown in Table 1 below.

Table 1
Gas Commodity Purchasing Plan

<table>
<thead>
<tr>
<th>Portfolio Planning Period</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Months from Present</td>
<td>1-18</td>
<td>19-27</td>
<td>28-36</td>
<td>37-60</td>
</tr>
<tr>
<td>Minimum Hedge</td>
<td>60%</td>
<td>40%</td>
<td>20%</td>
<td>0%</td>
</tr>
<tr>
<td>Maximum Hedge</td>
<td>10%</td>
<td>75%</td>
<td>50%</td>
<td>35%</td>
</tr>
<tr>
<td>Actual Hedge</td>
<td>53%</td>
<td>23%</td>
<td>3%</td>
<td>0%</td>
</tr>
</tbody>
</table>

The laddering strategy was suspended in December 2010 as the strategy was being reviewed, and since then the actual hedged amounts are below the minimum guideline. Figure 1 shows the first 36 months of the purchasing strategy; no gas has been purchased for delivery beyond October 2013.

Figure 1
Gas Supply Procurement Program for Pool Customers
June 14, 2011

Expected Pool Customer Load
Completed Purchases
Shaded area indicates hedge limits

Actual 49%
Min/Max = 50/90%

Actual 23%
Min/Max = 25/60%

Actual 1%
Min/Max = 0/30%
Example of Laddered Gas Purchases

Figure 2 and Figure 3 show how gas was actually purchased in a laddered fashion for two months in the past. Figure 2 shows fixed-price commitments for April 2008 in the three years prior to delivery of the gas. As illustrated, the forward gas price ranged from a little above $6/MMBtu to almost $10/MMBtu with the bidweek index price at delivery of $9.33/MMBtu. In this case, market prices were flat or increased during the three-year laddering period. This meant that the average cost for the gas delivered in April 2008 was much lower than the bidweek index price for the month as fixed-price commitments were made prior to delivery.

Figure 2

![April 2008 PG&E Citygate Trading History](image)

Figure 3 shows fixed-price commitments for February 2011 in the three years prior to delivery of the gas. As shown, the forward gas price ranged from a high of $11.60/MMBtu in July 2008 to a low of $4.25/MMBtu shortly before delivery. The bidweek index price for February 2011 was $4.34/MMBtu. In this case, as market prices were falling throughout the laddering period, the average cost for the gas delivered in February 2011 was much higher than the bidweek index price for the month.
Laddering Strategy Objectives

Figure 4 shows historical monthly market costs (as expressed by the monthly “bidweek” index), forward prices, and high and low price scenarios. The high and low prices are derived from the market price volatility embedded in the premium cost to purchase capped price products. Hedging reduces the cost impact to the portfolio should the high market price scenario occur. The decision to hedge, or not to hedge, should be based on the amount of cost increase the organization is prepared to accept. Hedging should not be considered to have been a bad decision if actual prices do not turn out to be high. In fact, hedging is expected to result in costs higher than the market at least some of the time.

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1 Capped price products are priced to float up and down with the market, but have a maximum price. For example, the forward fixed price as of June 14, 2011 for gas deliveries in December 2012 was $5.77/MMBtu. One could also buy a capped price product for December 2012 gas that would float with the market, but with a maximum price of $6.25/MMBtu. However, the premium for the capped price product was $0.50/MMBtu. When December 2012 arrives, the price for the gas would be the bidweek index up to the $6.25 maximum price plus $0.50/MMBtu. If the bidweek price for December 2012 is $4.00, then the total price paid will be $4.50/MMBtu (bidweek price plus the $0.50/MMBtu premium). If the bidweek price for December 2012 is $8.00/MMBtu, then the total price paid will be $6.75/MMBtu (maximum price plus the $0.50/MMBtu premium).
Implementation of the laddering strategy smoothed out the supply portfolio cost increases and decreases relative to the monthly spot market. Figure 5 shows CPAU’s Weighted Cost of Gas (WACOG) compared to the spot market prices over the period from July 2001 through May 2011.
Impact of Various Laddering Strategy Time Horizons
Making commitments to buy gas in advance of its delivery at fixed-prices means that the average portfolio cost will always be different from the spot market, either higher or lower. The hedged gas will be less expensive than the market when market prices are increasing and more expensive than the market when market prices are decreasing. In effect, the cost of a laddered portfolio lags a spot portfolio in time.

Figure 6 shows hypothetical annual portfolio costs for five different laddering time horizons using actual historical prices. These costs are compared to the costs of a portfolio, in which all gas was purchased at the monthly spot price. The figure illustrates that longer laddering horizons will result in the greatest differential between portfolio cost and market. That means greater discounts when the market is increasing and greater premiums when the market is decreasing for longer hedging horizons. As shown, the spot market portfolio would have cost the most in times of rising prices (FY 2004 through FY 2006) and the least in times of falling prices (FY 2007 through FY 2010). The difference in cost between the hedged and unhedged portfolios was most dramatic in FY 2009, during which prices fell precipitously.
**Figure 6**

**Cost of Portfolio vs. Different Laddering Periods**

**Relationship Between Commodity Rate Objective, Laddering Period and Reserves**

In addition to hedging, financial reserves are an important tool for achieving rate stability. Even with no hedging at all, a large reserve can mitigate the rate impact of oscillating market prices. Alternatively, aggressive hedging can mitigate the rate impact of oscillating market price without the need for large financial reserve funds.

Staff conducted a preliminary analysis of three different supply rate stability objectives – annual maximum supply rate adjustments of 10%, 20%, and 40%.

Figure 7 shows three different potential laddered hedging strategies. One is an aggressive laddering plan that hedges a part of the portfolio needs for three years ahead of delivery. A moderate two-year laddering strategy and a minimal, one-year laddering strategy are also depicted. Each of those strategies can be combined with a reserve guideline to achieve a specific gas supply rate stability objective.
Table 2 below shows the combination of Gas Supply Rate Stabilization Reserve (G-SRSR) requirements and hedging strategies that can be used to achieve three alternative gas supply rate stability objectives. While there are many other combinations of laddering horizon lengths, laddering targets and G-SRSR levels that work together to meet a supply rate objective, the table shows only three of those possible scenarios for each of three different gas supply rate objectives.

<table>
<thead>
<tr>
<th>Gas Supply Rate Objective</th>
<th>Minimal hedging (1-year ladder)</th>
<th>Moderate hedging (2-year ladder)</th>
<th>Aggressive hedging (3-year ladder)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Annual Rate Increase of 10%</td>
<td>$18 million</td>
<td>$15 million</td>
<td>$6 million</td>
</tr>
<tr>
<td>Maximum Annual Rate Increase of 20%</td>
<td>$14 million</td>
<td>$11 million</td>
<td>$2 million</td>
</tr>
<tr>
<td>Maximum Annual Rate Increase of 40%</td>
<td>$5 million</td>
<td>$2 million</td>
<td>$0</td>
</tr>
</tbody>
</table>

For example, as shown in the table, a three-year, aggressive laddering plan would require about $6 million in the G-SRSR, while a moderate two-year laddering plan requires a G-SRSR balance of about $15 million, and a one-year laddering plan with small amounts of hedging requires an $18 million G-SRSR balance to maintain a supply rate objective of a increasing rates by a maximum of 10% per year.

**Is There a Premium for Fixed-price Gas?**
The UAC raised the question regarding whether or not there is a cost, or premium, for purchasing gas on a forward basis compared to purchasing gas on the spot market. There is no definitive
evidence that the forward market inherently carries a premium. Every transaction requires two counterparties, one with a desire to guard against rising prices and the other with a desire to guard against falling prices. Depending on the overall market sentiment, the premium can go in either direction.

Figure 8 shows monthly bidweek prices and the highest and lowest prices the forward market traded during the 36 months prior to delivery for each of those months. The figure shows that the final trading price (the bidweek price) was equal to the historical high price during periods of increasing prices, equal to the historical low price during periods of decreasing prices, and in between when prices did not have a sustained direction. For example, the forward price for gas delivered in December 2006 ranged from a low of $4.92/MMBtu to a high of $11.59/MMBtu during the three years prior to delivery. The bidweek price for December 2006 was $7.56/MMBtu.

Figure 8
PG&E Citygate Prices
Actual Bidweek Index and Forward Prices as of May 31, 2011

There is less competition among sellers the farther into the future the delivery date is, so it is important to strike a balance between achieving stability and being able to buy at competitive prices. Staff researched the relationship between the time lapse to delivery month for the gas and the difference between the forward price for buying gas and the forward price for selling gas (called the bid/ask spread). Staff found that the bid/ask spread increases from about 1.3% of the underlying purchase price for delivery one year from now to 2.9% of the underlying purchase price nine years from now. The bid/ask spread is less than 2% of the underlying purchase price within the
current 36-month planning horizon. Table 3 shows the bid/ask spread as a percent of the forward price as of May 2011.

**Table 3**

<table>
<thead>
<tr>
<th>Delivery Year</th>
<th>Bid/Ask $/MMBtu</th>
<th>Forward Price $/MMBtu</th>
<th>Bid/Ask % of Forward Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>0.07</td>
<td>5.27</td>
<td>1.3%</td>
</tr>
<tr>
<td>2013</td>
<td>0.07</td>
<td>5.57</td>
<td>1.3%</td>
</tr>
<tr>
<td>2014</td>
<td>0.10</td>
<td>5.77</td>
<td>1.7%</td>
</tr>
<tr>
<td>2015</td>
<td>0.11</td>
<td>6.18</td>
<td>1.8%</td>
</tr>
<tr>
<td>2016</td>
<td>0.14</td>
<td>6.53</td>
<td>2.1%</td>
</tr>
<tr>
<td>2018</td>
<td>0.18</td>
<td>7.11</td>
<td>2.5%</td>
</tr>
<tr>
<td>2020</td>
<td>0.22</td>
<td>7.71</td>
<td>2.9%</td>
</tr>
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**CPAU’s Gas Rates compared to PG&E’s Gas Rates**

When comparing CPAU’s gas rates to PG&E’s gas rates, it is important to recognize that the rate usage tiers are not the same. Figure 9 shows two years of average monthly gas usage for residential customers on the G-1 rate schedule in Palo Alto as well as CPAU’s and PG&E’s first tier use limits. Because CPAU’s Tier 1 limit is relatively high, the average residential customer rarely pays rates in higher tier brackets.

**Figure 9**

Average Residential (G-1) Gas Usage
Figure 10 shows the total gas rates (supply plus distribution) for CPAU and PG&E by month over the past 14 years. As expected, CPAU’s gas laddering strategy results in a cost lag compared to the spot market and PG&E’s rates.

**Figure 10**

Residential Bundled rates

PG&E purchases gas on the monthly spot market and passes those costs on to customers through monthly-adjusted supply rates. Therefore, PG&E’s gas supply rates closely mimic the monthly spot market price (the “bidweek” index). Figure 11 shows the gas supply portion of both PG&E’s and CPAU’s gas rates. CPAU did not separate the supply rate from the distribution rate until July 2006. The figure shows the relative stability of CPAU’s gas supply rate.
CPAU's versus PG&E’s Gas Customer Bills
While it is true the laddering strategy smoothes out the cost of gas over time and results in relatively more stable gas supply rates, the average monthly customer bill is anything but stable. The main driver for the customer bill is weather which results in high or low gas usage. Figure 12 shows an average CPAU residential customer monthly bill and a bill for the same usage using PG&E’s residential rates. Despite CPAU’s stable rate and PG&E’s rate that changes on a monthly basis, the average customer’s bill is not stable at all in either service areas. In both areas, residential bills are substantially higher in the winter months when gas use is high. Figure 13 shows the differences between the annual bills for residents in CPAU and PG&E’s service areas.
Figure 12
Monthly Bill for Average Residential (G-1) Usage

Figure 13
Residential Gas Bill for Average G-1 Customer
Illustration of Implementation of the Utilities Advisory Commission’s Recommendation for a Gas Supply Rate Objective

Utilities Advisory Commission (UAC) Recommendation
On July 20, 2011, the UAC did not support staff’s recommendation to develop monthly-adjusted market-based gas supply rates. The UAC, instead, recommends an annual gas commodity rate change with an objective of 20% maximum gas supply rate change per year. If the UAC recommendation is approved by Palo Alto City Council, staff will implement a portfolio management plan including a gas purchasing strategy and utilization of the Gas Supply Rate Stabilization Reserve (G-SRSR) to meet that supply rate objective.

Price Uncertainty
The market price for gas in the future is uncertain. Figure 1 shows the current market price for gas purchased today to be delivered in future months as well as the high and low market price scenarios used in this analysis.

![Figure 1: Natural Gas Market Scenarios](image)

Potential Implementation of UAC Recommendation
Although the UAC recommendation for annual gas supply rate changes with a 20% maximum increase per year did not specify a laddering planning horizon, the UAC was generally supportive of a shorter horizon so that market prices would be passed on sooner, rather than later, to customers (but on an annual, not monthly, basis). If the UAC’s supply rate stability objective
recommendation is adopted by Council, staff would shorten the laddering horizon from 36 months to 12-18 months and implement a moderate hedging strategy.

Figure 2 illustrates one such scenario. In this example, hedging targets are 50% of expected pool load for the first 12 months and 30% of expected pool load for the following 6 months. Based on current market conditions and this hedging target, the G-SRSR balance required to accommodate a 20% maximum annual rate change objective is $12 million. The G-SRSR balance is currently projected to be $9 million at the end of FY 2012.

Because market prices and market price volatility are constantly changing, the portfolio plan would be updated at least twice per year. Specific hedging targets and G-SRSR levels would be reassessed as part of that planning process. For illustrative purposes, the implementation plan shown here begins in July 2011. Assuming a rate objective is adopted by Council in October 2011, staff would reassess the adequacy of the current G-SRSR guidelines and potentially recommend changes. Implementation of a new gas portfolio purchasing plan could begin immediately thereafter.

Council may adopt a different supply rate objective (different frequency of rate change and/or different maximum rate change). In that case, staff will develop a different portfolio management plan using gas purchasing and the G-SRSR to meet that objective.
ITEM 2: ACTION: Recommend Proposed Change to the Gas Purchasing Strategy to Implement a Market-Based, Monthly Adjusted Gas Supply Rate

Senior Resource Planner Karla Dailey presented staff’s recommendation to develop a market price-based, monthly adjusted gas supply rate for Pool customers. The presentation included analysis showing that longer laddering horizon result in greater deviation from market prices, as well as the lack of evidence of forward price premium. Dailey also presented comparisons of CPAU gas rates with PG&E rates and spot market prices since 1998 and explained that the main bill driver is usage, with high gas bills during the winter months. An alternative to the proposed market price rate is setting a stable rate objective that limits the rate change frequency as well as the rate increase each time. The reserve level and laddering strategy work together to meet the specific rate objective. For example, an objective of maximum annual supply rate increase of 10% can be met by aggressively laddering over a 36-month period, or moderately laddering over a 24-month period, or minimal laddering over a 12-month period. The reserve requirement will differ depending on the laddering strategy – the longer and more aggressive the laddering strategy, the lower the reserve requirement. As the maximum annual supply rate increase goes up, the reserve requirement lowers.

Commissioner Eglash asked about the staff savings under a market rate strategy. Dailey explained that initially there will be none, but over the long term, she estimated savings of 0.4 FTE (full-time equivalents.) Commissioner Eglash questioned the staff time required to implement monthly rate adjustments. Utilities Assistant Director Jane Ratchye indicated that the monthly rates will be similar to the current rate schedule for the G3 customers (large commercial customers), and that it would take to minimal time to also adjust the monthly rate for Pool customers.

Commissioner Eglash commented that gas prices are likely to stay at relatively low prices for a long time and asked if that is relevant. Dailey pointed out that market views are not relevant to the discussion.

Commissioner Keller asked whether the projected FTE reduction accounts for additional staff time to manage customer questions related to the fluctuating monthly gas rate. Dailey clarified that staff did not consider customer service resources. Usage is the primary bill driver, not so much the rate. The gas bill is also just a portion of the total utility bill, so even if the gas bill may be higher in the winter, it may not be significantly out of line because the water portion would be lower.

Commissioner Melton asked whether CPAU can level out the winter bill for low income customers, regardless of the laddering strategy. Dailey pointed out such a billing option is already currently available to customers.
Commissioner Melton also questioned the reasons behind the staff recommendation to swing to the opposite end instead of some intermediate position, such as shortening the ladder. Utilities Director Fong indicated that PG&E is the benchmark, and that unless CPAU adopts a market price rate, we will never compare favorably with PG&E. Commissioner Melton commented that the proposal is too big a move. His impression is that PG&E is a comparator, but he is not convinced that we should emulate PG&E. The City’s customer base values some amount of steadiness. Extreme variability of PG&E model is not what majority of customers want.

Director Fong commented that whatever gas purchasing strategy the City decides to adopt, we should stick to that strategy. Dailey emphasized that rather than focusing on the ladder, a supply rate objective more relevant. Once we have a supply rate objective, then staff can manage the portfolio to meet the objective. Defining the rate objective is the most valuable thing.

Commissioner Waldfogel referred to a slide in the presentation and commented on the long-term trend with short-term random events. The current laddering strategy creates a 2 to 3 years lagging trend. He also commented on the need to expose customers to second year trends trend while simultaneously shielding customers from short-term spikes.

Commissioner Keller expressed that she is in favor of stability. Predictable rates are more conducive to investing in conservation measures, as customers are more inclined to make investments when they can predict future savings. She added that CPAU has the benefit of focusing on customers, unlike PG&E, which focuses on shareholders. People value the service of having stable and predictable rates.

Commissioner Eglash also expressed his support for annual rate adjustment for Pool customers, rather than monthly rate adjustments. Laddering would be a separate issue, as the utility can adopt annual rates, but still forego laddering.

Assistant Director Ratchye explained that rate stability within the year does not address rate stability year-to-year. There will also be the question of the reserve level. Ratchye posed the idea of monthly changes within a band to dampen the spikes. Commissioner Waldfogel responded that customers might prefer a published set of rates in July for the next 12 months. Customers can't respond to shorter term price signals in a meaningful way.

Commissioner Melton noted that by allowing rate change only once per year, there is a risk of big annual increase. There would need to be a huge reserve or accept huge changes between years. An alternative is semi-annual or quarterly changes. Allowing mid-year rate adjustment could dampen the risk of big change on July 1.

Chair Foster pointed out that in the slide showing a 10% maximum annual supply rate increase, under a 1 year ladder, the reserve requirement is $18 million.

Commissioner Eglash moved to shorten the laddering period to a one-year ladder and set rates annually. This could be achieved with a reasonably-sized reserve. No rate objective is recommended. Commissioner Berry seconded the motion.

Assistant Director Ratchye noted the desire to pass on price signals more quickly. That will result in bigger annual rate changes than the past.
Commissioner Eglash agreed that by fixing annual rates but allowing year-to-year adjustments to respond to price changes can be a dual-edged sword. He pointed out that to meet the objective of annual rate change with no ladder requires bigger reserves. His sense is that getting rid of laddering altogether is an overreaction, but rather should find a common ground that is likely to be accepted by Finance Committee or Council.

Council Member Scharff commented that the UAC should not attempt to second guess what FC or Council will think, but rather should go with what they think is the right approach.

Commissioner Keller commented that there was an advantage to buying when we want rather than at the fluctuating market price. For example, by buying ahead of the delivery month, we can avoid buying gas during a natural disaster such as a hurricane that disrupts prices. Fong responded that there is never certainty that market prices will be short spikes or sustained. Many of the price spikes are sustained for some period and a laddered strategy cannot protect against these price spikes.

Commissioner Melton expressed his support for annual rate increases and that there are two ways of reaching the goal: one is laddering, and the other is reserves. These two trade off against each other. He then moved to amend the motion by asking staff to return with analyses with the objective of setting rates annually and either shortens or eliminates the ladder and increases the reserve to accomplish that.

Dailey pointed that if the goal is to change rates annually, then we need minimal reserves but that a large annual rate change is possible.

Commissioner Eglash deferred to staff to determine the optimal level of reserve requirement and laddering. Dailey explained that if there is no cap on the annual rate change, then there is not a need to do much more. The rates from one year to the next could be doubled or halved, and there is no need to put in place a laddering strategy.

Commissioner Eglash asked whether the UAC need to provide an explicit rate objective. Dailey responded that if the rate objective is 10%, then staff can design a strategy around that rate objective.

**ACTION:** Commissioner Eglash commented that a 20% cap on annual supply rate change is reasonable, as that would translate to a 10% annual gas rate change which exposes ratepayers to market prices, and yet provides some stability for customers’ planning purposes.

Chair Foster made a substitute motion, that the UAC reject staff’s recommendation and instead recommend an objective of one-year rate adjustments with 20% maximum annual supply rate change, with the mix between laddering and RSR to be determined by staff.

Commissioner Eglash seconded the motion.

The amended motion passed unanimously (6-0).