

# **COUNCIL COMMUNICATION**

# City Clerk Use Only

**DATE:** February 25, 2009

TITLE: Electric Hydroelectric Adjustment, Climate Change Mitigation Fee

Change and Rate Stabilization Fund Balance Recommendation

CONTACT: Michelle Bertolino/x5603/mbertolino@roseville.ca.us

Meeting Date: March 18, 2009

### **SUMMARY RECOMMENDATION**

Staff recommends that City Council approve the attached changes to Roseville Municipal Code ordinances 14.24.040, 14.24.050, 14.24.052 and 14.24.071. The recommended changes will:

- Implement a Hydroelectric Adjustment (surcharge or credit), to be applied to electric bills. The Hydroelectric Adjustment will be implemented in years of noticeable deviation from average precipitation and may range from a minimum of one percent to a maximum of five percent of total electric charges. The adjustment may change annually, based on annual hydroelectric conditions.
- Revise the Climate Change Mitigation Fee from a flat charge to a consumption based charge. The revised fee will use energy consumption as the base for allocating the fee. Additionally, customers who enroll in Roseville Electric's green energy program, Green Roseville, and pay program costs to have 100% of their energy provided by renewable resources, will not be charged the Climate Mitigation Fee.

Staff also recommends revision to the financial policy that defines the range of the Rate Stabilization Fund (RSF) balance, reducing the minimum balance from 60 to 40 percent of operating expenses. Staff expects that the hydroelectric adjustment will negate the need to maintain the minimum balance of RSF at the level. On January 27, 2009, the Roseville Public Utilities Commission reviewed and approved staff's recommendations with a vote of 6-0 (one Commissioner had an excused absence).

#### **BACKGROUND**

#### Hydroelectric Adjustment and Rate Stabilization Fund

In 1996, the Roseville City Council established the RSF to address volatility of electricity cost and to minimize impact on electric rates resulting from the deregulation of the electric utility industry. For the past decade, Roseville had utilized the Rate Stabilization Fund to mitigate significant cost deviations and minimize rate increases.

In 2005, the Roseville City Council established a number of financial policies, one of which was to maintain the balance of the RSF at 60-90 percent of operating expenses. The 60% minimum RSF target helped to insulate the utility from all types of financial hazards, including risk associated with volatility of energy prices, availability of hydroelectric resources, etc.

The majority of Roseville Electric's annual operating costs are spent on purchasing and generating electricity. Roseville's primary power resource is the Roseville Energy Park, fueled

primarily by natural gas, which could be hedged in the forward market to ensure cost stability. Other key resources for Roseville include the Western Area Power Administration contract and the Northern California Power Agency's Calaveras project, both of which are hydroelectric power generation, the output of which is largely dependent on water precipitation.

Roseville receives approximately 16% of its electricity from hydroelectric sources. During low precipitation conditions, hydroelectric generation is minimal, requiring replacement of the hydroelectric power with expensive market purchases. Since the cost of our hydroelectric resources is virtually constant irrespective of water conditions, in dry years, Roseville Electric must acquire replacement energy from the market at high prices and spend more than expected on power supply. Inversely, during wet years, hydroelectric generation can exceed expectations and we are likely to displace more expensive market resources and spend less than expected on power supply.

In the past, the RSF was used to cushion the variations in annual precipitation. During dry years, funds would be drawn from the RSF to fund the added expense and during wet years, savings would be deposited into the RSF to maintain the balance at appropriate levels. To the extent that market power cost was reasonable, this approach worked well. However, a combination of two successive dry years and a spike in market prices forced the withdrawals of \$25 million from the RSF over the past three years, reducing the balance to levels significantly lower than required by Council policy.

One option is to continue the current approach and raise rates to replenish the RSF to appropriate levels. This option has a number of flaws, including the time involved in preparing a rate adjustment case and the possibility that a very dry year could be followed by a very wet year, forcing the possibility of permanently increasing rates in one year, then reducing them the following year.

After thorough analysis and research, staff recommends a different approach: the implementation of a Hydroelectric Adjustment, which will be calculated annually and be based on precipitation levels and market prices for replacement energy. This approach will allow Roseville to better match current costs with rates, quickly respond to lower precipitation, allow for a lower reserve level, and provide cost transparency for ratemaking purposes.

### **Climate Change Mitigation Fee**

In January 2008, City Council approved the Climate Change Mitigation Fee (Fee) to cover a portion of Roseville Electric's costs attributable to regulations related to greenhouse gas emissions. The Fee is currently set at \$4 per month for residential and small business customers and \$25 for medium and large business customers.

Since implementation of the Fee, Roseville Electric has received a number of emails and a letter expressing dissatisfaction with the Fee. Many of the comments focused on rejecting the flat fee as the basis for allocating the fee, especially from customers who had done a great deal to reduce their energy consumption and felt that a flat fee is rather punitive to them. Other comments objected to the notion that climate change is man-made and urged Roseville Electric to reject it. While staff acknowledges the legitimacy of objections to the current allocation methodology and is recommending an approach to address it, we take no position on the science of climate change. Whatever the cause of the problem might be, the Fee was implemented to begin to cover the cost incurred by Roseville Electric due to new climate change mitigation legislation and regulation.

After considering many options, staff recommends revising the Climate Change Mitigation Fee from a flat monthly charge to a charge based upon actual energy consumption each month. Additionally, staff recommends that customers, who enroll in Roseville's green energy program, Green Roseville, and pay to have 100% of their energy provided by renewable resources, be exempted from paying the Climate Change Mitigation fee.

### **DISCUSSION**

## **Hydroelectric Adjustment**

Roseville Electric receives electricity from two hydroelectric generation providers, the Northern California Power Agency (NCPA) Calaveras Project and Western Area Power Administration (WAPA). In a normal precipitation year, Roseville receives 222 gigawatt hours or 16% of its electricity needs from hydroelectric facilities. In a moderately dry year, as was the case in 2008, Roseville's hydroelectric generation declined to 184 gigawatt hours, a reduction of almost 20%, resulting in cost increases of \$6 million in replacement energy costs. Consecutive dry years can have a significant impact on Roseville power supply cost.

Virtually all of the cost of the hydroelectric power is fixed, in the form of debt service. In a dry year, when minimal electricity is generated from the facilities, the cost of the hydroelectric facilities does not decline since debt service and certain maintenance costs must still be paid. Not only does the cost not decline, replacement energy is likely to be purchased at higher prices, giving the higher demand on it. As a result, significant amounts must be withdrawn from reserves to cover the cost of replacement power. In a wet year, the utility can receive extra energy, virtually free, replacing higher cost resources. Weather and cost swings create significant challenges in maintaining stable rates and strong financial reserves for the utility.

In dry water years, Roseville's available hydroelectric resources can be reduced up to 70 percent. Between calendar years 2006 and 2007, the City's hydroelectric energy decreased more than 50% due to drastic differences in weather conditions (wet year followed by a dry year). Decreased output from the hydroelectric sources is generally replaced with market energy, which cost up to eight times the variable cost of hydroelectricity. Additionally, electricity and natural gas market prices historically increase in years with low hydroelectric conditions.

The impact of a very dry year on power supply costs can be estimated using the 1976-77 drought as a benchmark. A repeat of that year's precipitation, which would produce only about 33% of our normal hydroelectric output, would place significant and immediate pressure on the utility's budget and reserves. In the above scenario, Roseville would stand to receive only 75 gigawatt hours from its hydroelectric resources, and purchase 150 gigawatt hours of replacement energy. The price of the replacement energy can vary, but applying a value of \$80,000 per gigawatt hour (the current average rate) means the utility would spend an extra \$12 million for energy in one year. The cost could easily be higher, as the market price of energy would most likely rise as market demand increases in very low precipitation years.

Roseville Electric's budget process takes many months to prepare for the following fiscal year. Budget preparations begin in January. Roseville's budget estimates are finalized by February of each year, to be presented to City Council for review and approval. At the time we submit our final budget request, the expected hydroelectric resource deliveries are not yet known, since the rainy season has not yet ended and final snow pack measurements are not yet completed. We can usually estimate the level of available hydroelectric resources for the most critical months (of the following year) by May. If, resources are down, we begin revenue and cost analysis to determine whether a rate action is necessary. Typical rate actions (from start to finish) last up

to six months, which results in higher costs for replacement energy without revenue to cover the increased costs until at least November. This is especially critical since the summer months of June through September are Roseville's highest electricity consumption months.

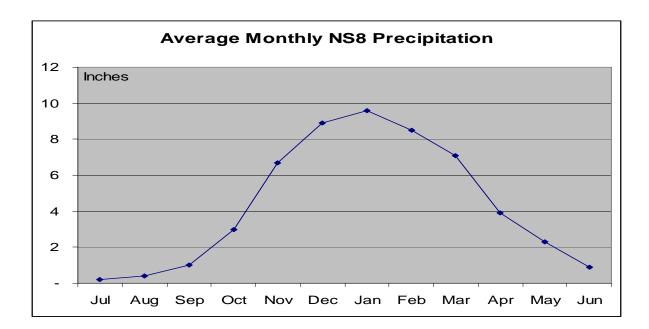
The likelihood and amount of the hydroelectric adjustment will depend on the amount of hydroelectric power available to Roseville. The adjustment will be calculated in May of each year (with measurements received by April 30). May is selected based on water year cycles for hydroelectric generation purposes and measurement schedules.

Total precipitation from the fall through spring seasons, as measured and reported from the Northern Sierra 8 Station Index (NS8), is one of the best indicators of generation at Roseville's hydroelectric facilities. The average annual precipitation at NS8 for the past 50 years is 52.5 inches.

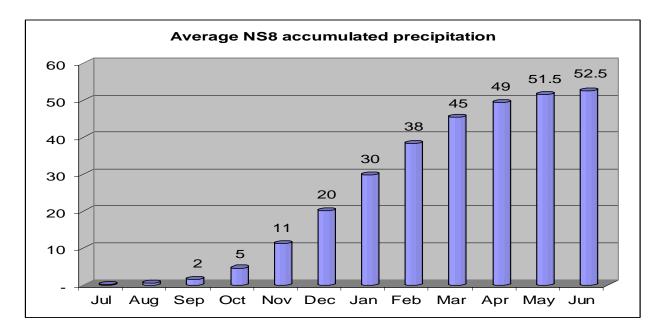
In an average precipitation year, Roseville will receive 222 gigawatt hours (Gwh) of power from hydroelectric resources. The following formula illustrates the value of precipitation per inch:

222 GWH divided by 52.5 inches = 4.23 GWH per inch of precipitation

In relevant terms, 4.23 Gwh is enough energy to power 370 Roseville homes for a year. An average year that produces 52 inches of precipitation will provide enough hydroelectric energy to power almost 20,000 Roseville homes.



Through April 30, historical precipitation is 49.3 inches, or 94% of the expected annual total. Since the hydroelectric calculation will use the precipitation index as of April 30, there is only a very slight chance that May or June precipitation will materially affect the adjustment decision. The table on the following page shows how the precipitation historically accumulates throughout the year.



The actual precipitation each year will be measured at the NS8 by The National Weather Service. Market price estimates for replacement energy will be determined based on Energy Market Report® (EMR) posted energy prices at North Path 15 (NP 15- delivery and price point for Northern California electricity trading purposes).

For purposes of calculating the hydroelectric adjustment each year, Roseville Electric staff will assume that 49 inches of precipitation represents an average year for NS8 (based on average 50 year historical data) through April 30. One inch of precipitation equals approximately 4.23 Gwh of energy, based on average deliveries to Roseville and average hydroelectric deliveries to Roseville equal 222 Gwh.

Using the assumptions listed in the preceding paragraphs, the following calculations will be used to determine the adjustment:

#### 1. Average Precipitation – Actual Precipitation = Precipitation Variance

If precipitation variance is greater than zero, the adjustment is a surcharge, if not, the adjustment could be a credit

- 2. Precipitation Variance in Inches x 4.23 Gwh = Energy Variance
- 3. Energy Variance x Annual Forward Market Price\*\* = Budget Impact
- 4. Budget Impact ÷ budget retail sales in kwh = Hydroelectric adjustment per kwh

<sup>\*</sup>Annual Energy Sales based on latest Roseville Electric Forecast

<sup>\*\*</sup> Posted energy prices at North Path 15

The adjustment will be placed on customers' bills beginning July 1 of each year lasting twelve months, through June 30. In wet years, savings will be deposited in the RSF. Once the balance of the RSF reached the high end of the range established by Council, customers will receive up to a 5% energy credit for the following fiscal year.

Cost increases or decreases in excess of 5% or other cost variances will be handled through the standard ratemaking, budgetary and City Council approved procedures.

## **Bill Impacts of Hydroelectric Adjustment**

The table below shows monthly customer impact examples with the utility recovering a power purchase expense of \$5 million, due to a moderately dry season:

	Kwh / month	Typical monthly bill	Monthly bill w/ half- cent adjustment	Impact / month
House	950	\$116	\$121	\$4.75
Apartment	475	\$56	\$58	\$2.37
Office	1,300	\$160	\$166	\$6.50
Large store	26,000	\$2,750	\$2,880	\$130
Hospital	1,000,000	\$83,000	\$87,000	\$4,000

The table below lists the utilities that employ a power cost or hydroelectric adjustment to supplement their standard rates, and the frequency of that review and/or implementation.

Utility	Adjustment
R E proposed	Annual
SMUD	Annual
Santa Clara	None
Palo Alto	None
Lodi	Monthly
Redding	None
Modesto ID	None
Turlock ID	2x per year

#### **Rate Stabilization Fund**

Roseville's Rate Stabilization Fund (RSF) is used as a hedge to absorb large power cost increases due to plant outages, dry hydrological conditions, unplanned operating activities (such as the recent purchase of NCPA's combustion turbine) and catastrophic events. The RSF can be used quickly to absorb unplanned cost increases, reduce the frequency of rate increases and maintain financial strength. Roseville's strong RSF policy is a significant factor in Roseville Electric's stable rates, high credit ratings and lower cost of borrowing when compared to other electric utilities.

Rate stabilization funds are commonly used by electric utilities to minimize drastic swings in revenue requirements and allow for less frequent changes to customer rates. For over 10 years, Roseville Electric's RSF has minimized rate increases significantly.

In 2005, City Council approved Roseville Electric's financial policies which establish the funding level for the RSF at 60-90% of net operating costs (operating costs net of wholesale power sales, debt service and franchise fees), with a target balance of 75%. Over the past three years, Roseville transferred over \$25 million from the rate stabilization fund. As of December 31, 2008 the balance in the RSF is approximately \$53 million or 42% of net operating costs. The reduced balance is primarily due to lower hydroelectric energy availability in 2007 and 2008, as well as unplanned power supply activities.

The table below compares Roseville's proposed RSF balance of 40-90% of operating expenses to other publicly owned electric utilities in the region, and their combined cash reserve and rate stabilization fund ratios. The numbers include some estimates as some utilities' policies are based on "days of cash" that had to be converted by staff to match RE's percent of operating expenses basis.

Utility	Reserve fund target/policy as % of operating expenses
R E proposed	40-90%
SMUD	7%
Santa Clara	42-63%
Palo Alto	41-85%
Lodi	17%
Redding	20%
Modesto ID	50%
Turlock ID	22%

Roseville's proposed RSF balance level and hydroelectric adjustment are not uncommon financial management tools. The proposed RSF policy is consistent with the other utilities surveyed and more than half of those utilities surveyed use a power cost or hydroelectric adjustment.

# **Climate Change Mitigation Fee**

Staff reviewed alternatives to the current Fee calculation and the impact on different types of residential customers, as well as typical business customers in each rate class. The revenue collected from each customer class was not adjusted. The review included three options:

- 1) Status quo.
- 2) Change the Fee to a surcharge on energy (kWh) consumed, maintaining the climate change mitigation revenue requirement from each customer class the same.
- 3) Eliminate the Fee and increase standard energy rates to cover lost revenue.

While the expected revenue under each option is the same for each customer class, irrespective of the selected option, the impact on customers within each customer class is different.

Given that the purpose of the Climate Change Mitigation Fee has not changed since it was established in early 2008 and Roseville Electric's costs to address climate issues is likely to increase, staff believes that option 3 falls short of pointing out the cost associated with climate change mitigation. To acknowledge and reward customers for implementing energy efficiency measures and/or installing solar roof tops, staff recommends option 2, which results in a slight deviation from the status quo. The following tables show comparisons of all 3 options on residential customer rates. The impact on businesses is negligible.

The following tables present fee and bill comparisons for residential customers under the three options.

Table 1: Climate Change Mitigation Fee, Residential Rate Comparison

	Tier 1: 0-500	T2: 501-1000	T3: >1000	Climate Change Fee	Meter Charge
Option 1: Status Quo	\$0.0899	\$0.1280	\$0.1462	\$4.00 / customer	\$8.00
Option 2: Surcharge based on kWh consumption	\$0.0899	\$0.1280	\$0.1462	\$0.0050 / kwh	\$8.00
Option 3: Fee eliminated, rates increased to cover revenue loss	\$0.0939	\$0.1330	\$0.1512	(in rates)	\$8.00

#### Notes:

<sup>1-</sup> Annual residential climate change revenue is around \$2.4 million. This amount was divided by the total residential consumption in KWh

<sup>2-</sup> Considers annual climate change revenue prorated by tier based on revenue: T1~45%; T2~30% and T3~25%.

Table 2: Climate Change Mitigation Fee, Residential Bill Comparison

Fee Options	Avg. Apartment 475 KWh	Avg. House 950 KWh	Large house 1,300 KWh
Option 1: Status Quo	\$56	\$116	\$165
Option 2: Surcharge based on kWh consumption	\$55	\$117	\$168
Option 3: Fee eliminated and rates increased to revenue loss	\$55	\$117	\$168

#### **FISCAL IMPACT**

Total retail sales from energy in Fiscal year 2010 are estimated to be \$140 million. The hydroelectric adjustment impact to customers will vary from \$0 to \$7 million or up to 5% of total electric revenue. There is no direct fiscal impact of modifying the Rate Stabilization Fund balance policy.

The revision of the Climate Change Fee from a flat charge to a consumption based charge is revenue neutral to the City. Exempting Green Roseville customers from paying the Climate Change Fee reduces overall Electric revenues by approximately \$100,000 annually. Upon approval, Electric's proposed 2010 budget will be adjusted accordingly.

### **ENVIRONMENTAL REVIEW**

Approval of the Hydroelectric Adjustment, Climate Change Mitigation Fee revision and Rate Stabilization Fund Balance is considered statutorily exempt from CEQA (State CEQA Guidelines section 15273). The project involves the establishment, modification, structuring, restructuring, or approval of rates for the purpose of meeting operating expenses. No further CEQA action is required.

### RECOMMENDATION

Staff requests approval of the attached changes to Roseville Municipal Code ordinances 14.24.040, 14.24.050, 14.24.052 and 14.24.071 to implement an annual Hydroelectric Adjustment to offset cost fluctuations due to varying precipitation levels, effective July 1, 2009 and revision to the Climate Change Mitigation Fee from a flat charge to a consumption based charge; and approval to reduce the minimum balance maintained in the Rate Stabilization Fund from \$60 million to \$40 million. On January 27, 2009, the Roseville Public Utilities Commission reviewed and approved staff's recommendations with a vote of 6-0 (one Commissioner had an excused absence).

Respectfully Submitted,	
Michelle Bertolino Assistant Electric Utility Director	
Tom Habashi Electric Utility Director	
APPROVED:	
W. Craig Robinson City Manager	