



MEMORANDUM

Commercial & Industrial Rate Options

TUCSON WATER

August 14, 2023

Purpose

The City of Tucson City Council directed Tucson Water to develop alternative water rate structures for commercial and industrial customers to provide a stronger conservation incentive. This memorandum summarizes Tucson Water’s current commercial and industrial rates and presents two specific rate alternatives based on the Commercial Rates White Paper prepared in February 2023.

Current Rate Structure

For purposes of this memorandum, “current” rates refer to the most recently adopted rates (effective July 1, 2023). Tucson Water’s current rates include monthly service charges scaled by meter size, tiered (“inclinng block”) volumetric rates for single-family and duplex customers, and uniform volumetric rates for multifamily and construction water customers.

A “base/excess use” rate structure is used for commercial and industrial customers, where base volumetric rates are applicable year-round and additional surcharges are applied to consumption in excess of winter average water use during designated “summer” months. Table 1 shows current commercial and industrial volumetric rates per hundred cubic feet (CCF) of water usage.

Table 1 – Current Tucson Water Commercial and Industrial Rates

Volumetric Rate Components	Charge per CCF	
	Commercial	Industrial
Base Volumetric Rate (Applies to all consumption Nov-Apr)	\$3.49	\$3.53
Summer Surcharge Rates (Apply May-Oct)		
Base Rate: Applies to usage = or < winter avg. consumption (WAC)	\$3.49	\$3.53
Surcharge Tier 1 Rate*: Consumption 101% to 145% of WAC	\$4.63	\$4.67
Surcharge Tier 2 Rate*: Consumption > 145% of WAC	\$4.94	\$4.98
*Surcharge Tier Rates = sum of Base Rate +Surcharge (Tier 1 surcharge = \$1.14/ccf; Tier 2 surcharge = \$1.45 [\$1.14 +\$0.31])		

As shown in Table 1, surcharge rates apply to usage exceeding a customer’s winter average consumption (WAC). The WAC is calculated by averaging the customer’s winter period usage (currently defined as the months of November – April) and rounding to the nearest CCF.

Table 2 shows the WAC calculation for a sample customer. Under Tucson Water’s current policy, months with zero usage are excluded from the averaging calculation, so the WAC for the usage profile shown in Table 2 is 10 CCF.

Table 2 – Example Commercial WAC Calculation – Current Approach

Usage Date	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22
CCF	0	11	10	9	10	10
WAC (rounded, CCF)	10					

Table 3 illustrates surcharge volumes and revenues for the same customer with 10 CCF WAC during the currently defined summer period. During the months of May through October, any portion of use more than 10 CCF is charged at one of the higher surcharge tier rates. Specifically, the portion of consumption between 101% and 145% of WAC (11 CCF – 14.5 CCF in this example) is billed at the Tier 1 surcharge rate (\$4.63/CCF for a commercial customer). Usage exceeding 145% of WAC (14.5 CCF) is charged at the Tier 2 surcharge rate (\$4.94 for a commercial customer), as shown in Table 1.

Table 3 – Example Summer Surcharge Calculation – Current Approach

Usage Month	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22
Total CCF/Month	12	14	15	16	14	13
WAC (rounded, CCF)	10	10	10	10	10	10
Tier 1 Surcharge Rate (CCF)	2	4	5	6	4	3
Tier 2 Surcharge Rate (CCF)	0	0	0.5	1.5	0	0
Base Rate Revenue	\$ 34.90	\$ 34.90	\$ 34.90	\$ 34.90	\$ 34.90	\$ 34.90
Tier 1 Rate Revenue	\$ 9.26	\$ 18.52	\$ 20.84	\$ 20.84	\$ 18.52	\$ 13.89
Tier 2 Rate Revenue	\$ -	\$ -	\$ 2.47	\$ 7.41	\$ -	\$ -
Total Revenue	\$ 44.16	\$ 53.42	\$ 58.21	\$ 63.15	\$ 53.42	\$ 48.79

Conservation Rate Options

Two alternative rate structures for commercial and industrial were developed based on the February 2023 Commercial White Paper. Both alternatives calculate WAC by averaging consumption for the months December through February, rather than November through April. As discussed in the White Paper, use of the 3-month WAC period is consistent with how WAC was determined for the residential class for purposes of designing their current inclining block rate structure. Pima County also uses a 3-month winter averaging period for determining billing volumes for wastewater rates.

To further enhance the conservation price signal for commercial and industrial customers, two additional policy modifications are incorporated into the rate alternative presented in this memorandum:

1. Zero usage values in winter months are included in the calculation of the WAC (resulting in a lower WAC for customers with any zero values during the averaging period and additional consumption charged at the surcharge tier rates).
2. For customers with zero WAC, all consumption during non-winter months is charged at one of the surcharge tier rates (discussed in detail below), further increasing the volume of consumption billed at the higher surcharge rates.

Rate Option 1A

3-Month WAC, Surcharge Tier 1 Rate for 0 WAC Customers

Option 1A is most like Tucson Water's current rate structure. Like the current structure, Option 1A has a base volumetric charge assessed to all units of consumption, and a two-tier surcharge structure. Like the current approach, for customers whose WAC is greater than zero, consumption between 101% and 145% of WAC is billed at the Tier 1 (T1) surcharge rate, while usage above 145% of WAC is billed at the Tier 2 (T2) surcharge rate.

Unlike the current structure, the WAC reflects the 3-month (Dec-Feb) WAC averaging period, and zero volumes during the winter period are included in the WAC calculation. Furthermore, for 0 WAC customers, all usage during the March through November period is billed at the Tier 1 surcharge rate. This deviates from Tucson Water's current policy of assessing the base volume rate for all usage if a customer has 0 WAC.

Table 4 shows the rate schedule for Option 1A.

Table 4 Option 1A Commercial and Industrial Rates

	Charge per CCF	
	Commercial	Industrial
Volumetric Rates		
Base Volumetric Rate (Applies to all consumption Dec – Feb)	\$3.43	\$3.50
Summer Rates (Apply March-November)		
Base Rate: Applies to usage = or < WAC	\$3.43	\$3.50
Surcharge Tier 1 Rate*: Consumption 101% to 145% of WAC; all consumption for 0 WAC customers	\$4.57	\$4.64
Surcharge Tier 2 Rate*: Consumption > 145% of WAC	\$4.88	\$4.95
*Surcharge Tier Rates = sum of Base Rate +Surcharge (Tier 1 surcharge = \$1.14/ccf; Tier 2 surcharge = \$1.45 [\$1.14 +\$0.31])		

Rate Option 1B

3-Month WAC, Surcharge Tier 2 Rate for 0 WAC Customers, New Tier 3

Option 1B is the same as 1A, except it adds a third summer surcharge tier for any usage over 215% of WAC (assuming WAC >0) and, for customers with 0 WAC, the customer is billed at the Tier 2 surcharge rate for all their summer (March – November) use. Table 5 shows the rate schedule for Option 1B.

Table 5 Option 1B Commercial and Industrial Rates

	Charge per CCF	
	Commercial	Industrial
Volumetric Rates		
Base Volumetric Rate (Applies to all consumption Dec. – Feb.)	\$3.32	\$3.28
Summer Rates (Apply March-November)		
Base Rate: Applies to usage = or < WAC	\$3.32	\$3.28
Surcharge Tier 1 Rate*: Consumption 101% to 145% WAC	\$4.46	\$4.42
Surcharge Tier 2 Rate*: Consumption >145% up to 215% WAC; all consumption for 0 WAC customers	\$5.21	\$5.17
Surcharge Tier 3 Rate*: Consumption > 215% WAC	\$6.21	\$6.17
*Surcharge Rates = sum of Base Rate +Surcharge (Tier 1 surcharge = \$1.14/ccf; Tier 2 surcharge = \$1.89 [\$1.14 +\$0.75]; Tier 3 surcharge = \$2.89 [\$1.14 +\$0.75 +\$1.00]).		

Comparison of Rate Alternatives

Tables 6 and 7 show the total and incremental rates under Option 1A and Option 1B, compared to the current rates. The rate alternatives are intended to be “revenue neutral” (generate *approximately* the same revenue as the current rates) and reflect estimated water use reductions resulting from the enhanced conservation price signals.

Table 6 – Summary of Current and Alternative Volumetric Rates (\$/CCF) - Commercial

Rate Block	Current Rates		Option 1A		Option 1B	
	Total Rate	Incremental Rate	Total Rate	Incremental Rate	Total Rate	Incremental Rate
Base Rate	\$3.49		\$3.43	--	\$3.32	--
Summer Rates	<i>Applied May-Oct</i>		<i>Applied Mar-Nov</i>		<i>Applied Mar-Nov</i>	
Surcharge T1 (100% WAC)	\$4.63	\$1.14	\$4.57	\$1.14	\$4.46	\$1.14
Surcharge T2 (145% WAC)	\$4.94	\$0.31	\$4.88	\$0.31	\$5.21	\$0.75
Surcharge T3 (215% WAC)	n/a	n/a	n/a	n/a	\$6.21	\$1.00

Table 7 – Summary of Current and Alternative Volumetric Rates (\$/CCF) - Industrial

Rate Block	Current Rates		Option 1A		Option 1B	
	Total Rate	Incremental Rate	Total Rate	Incremental Rate	Total Rate	Incremental Rate
Base	\$3.53		\$3.50	--	\$3.28	--
Summer Rates	<i>Applied May-Oct</i>		<i>Applied Mar-Nov</i>		<i>Applied Mar-Nov</i>	
Surcharge T1 (100% WAC)	\$4.67	\$1.14	\$4.64	\$1.14	\$4.42	\$1.14
Surcharge T2 (145% WAC)	\$4.98	\$0.31	\$4.95	\$0.31	\$5.17	\$0.75
Surcharge T3 (215% WAC)	n/a	n/a	n/a	n/a	\$6.17	\$1.00

For both rate alternatives, the shortening of the winter averaging period (from 6 months to 3 months) and additional months charged at the higher surcharge rates, results in a reduction in the base volumetric rates, as projected revenue from surcharge tier rates is higher. This reduction to the base volumetric rates to maintain overall revenue consistent with current rates is offset by the reduction in consumption from assumed “price elasticity” (i.e., as the surcharge tier rates increase, the volumes sold are projected to decrease). Specifically, base volumes are assumed to decrease between 2.5% and 5% (depending on the customer class), while tier volumes (which represent more discretionary use) are estimated to be 10%-20% lower depending on the option, tier, and customer class.

Table 8 shows the estimated revenue recovery by class and rate tier for each option, compared to the current rates. Currently, about 16% of annual commercial revenue is recovered from the Tier 2 surcharge rate, while Options 1A and 1B progressively increase the proportion of estimated revenue recovery from the upper rate tiers (26% in Option 1A and 44% in Option 1B).

Table 8 Estimated Annual Revenue (\$M) By Rate Tier and Class

Rate Option and Class	Base Rate	Tier 1 Surcharge Rate	Tier 2 Surcharge Rate	Tier 3 Surcharge Rate	Total (All Volumetric Rates)	Tiers 2 and 3 % of Total
Current						
Commercial	\$24.5	\$3.3	\$5.2	\$0.0	\$32.9	16%
Industrial	\$1.3	\$0.3	\$0.7	\$0.0	\$2.3	30%
Option 1a						
Commercial	\$20.8	\$5.0	\$7.2	\$0.0	\$32.9	22%
Industrial	\$1.1	\$0.3	\$0.9	\$0.0	\$2.3	38%
Option 1b						
Commercial	\$20.2	\$4.2	\$3.3	\$5.3	\$32.9	26%
Industrial	\$1.0	\$0.2	\$0.3	\$0.7	\$2.3	44%

Overall revenue recovery and percentages by block will depend on the sensitivity of customers to the changes in the pricing structure and policies discussed previously, as well as annual weather fluctuations. With a greater proportion of revenue projected from the more discretionary summer surcharge tiers, annual rate revenue is likely to be less stable from year to year in Options 1A and 1B, compared to the current rate structure. Sustained water use reductions are likely over Tucson Water’s 4-year rate setting period, as customers implement additional water-saving measures.

Customer Bill Impacts

Figures 1 through 4 show estimated annual customer bill impacts (volume portion only) associated with the rate options. Figures 1 and 2 show the percent annual bill changes for the two rate options for commercial, while Figures 3 and 4 show percentage bill changes for industrial. Some customers are expected to see bill reductions due to the decrease in the base

volumetric charges and lower peak summer use, while other customers are expected to see bill increases.

Some of the highest *percentage* bill increases result from customers with 0 WAC that are currently assessed base rates on all their summer usage (even for irrigation purposes). Under the revised policy framework, customers with 0 WAC (about 470 commercial customers) would be charged the Tier 1 surcharge rate (a 31 percent increase) in Option 1A and the Tier 2 surcharge rate (a 49 percent increase) in Option 1B.

It is important to note that the calculated *rates* for Options 1A and 1B have been adjusted for estimated price elasticity, while the customer usage profiles used to generate the bill impacts are based on actual fiscal year 2021-2022 use.

Summary

This memorandum presents two alternative water conservation-oriented rate structures for Tucson Water's commercial and industrial customers. Based on the direction of the City of Tucson City Council, the alternative rates reflect a 3-month reduced "winter" period (Dec-Feb) and a potential additional surcharge rate tier (Option 1B). The rates also reflect assumed policy changes to the calculation of the WAC and charging practices for 0 WAC customers. The rates have been adjusted for estimated price elasticity from the enhanced conservation price signals. However, Tucson Water should closely monitor customer usage in the context of rate and weather changes, and adjust future rates as needed to meet annual revenue requirements.

Figure 1: Option 1A (% Change in Annual Customer Bills (Commercial))

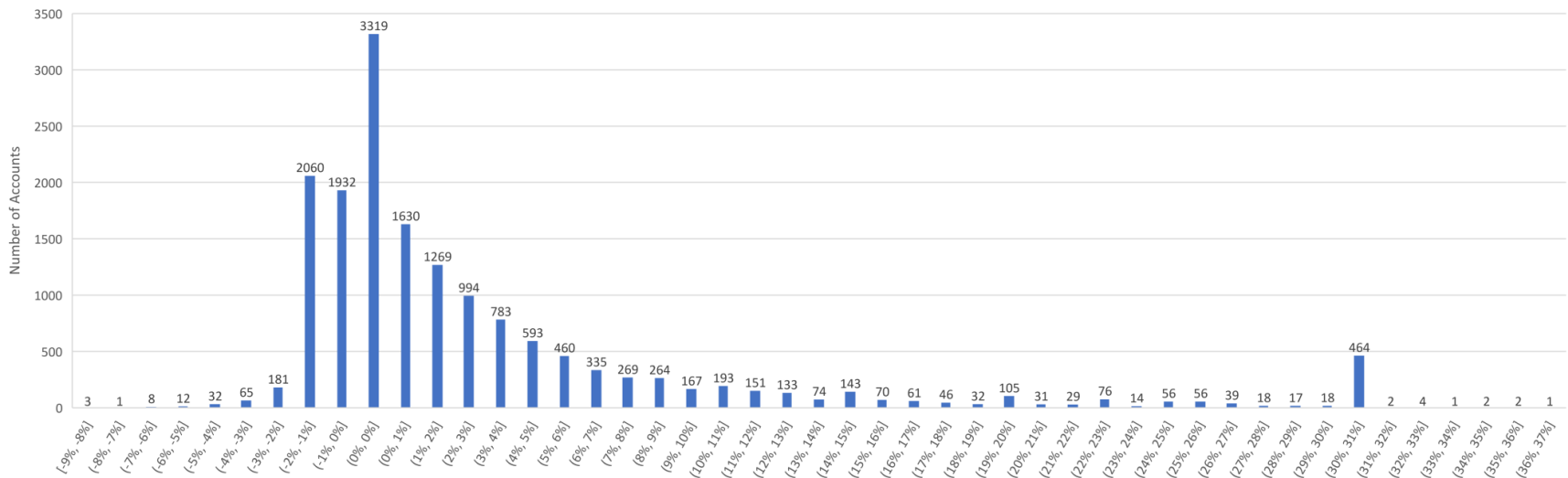


Figure 2: Option 1B % Change in Annual Customer Bills (Commercial)

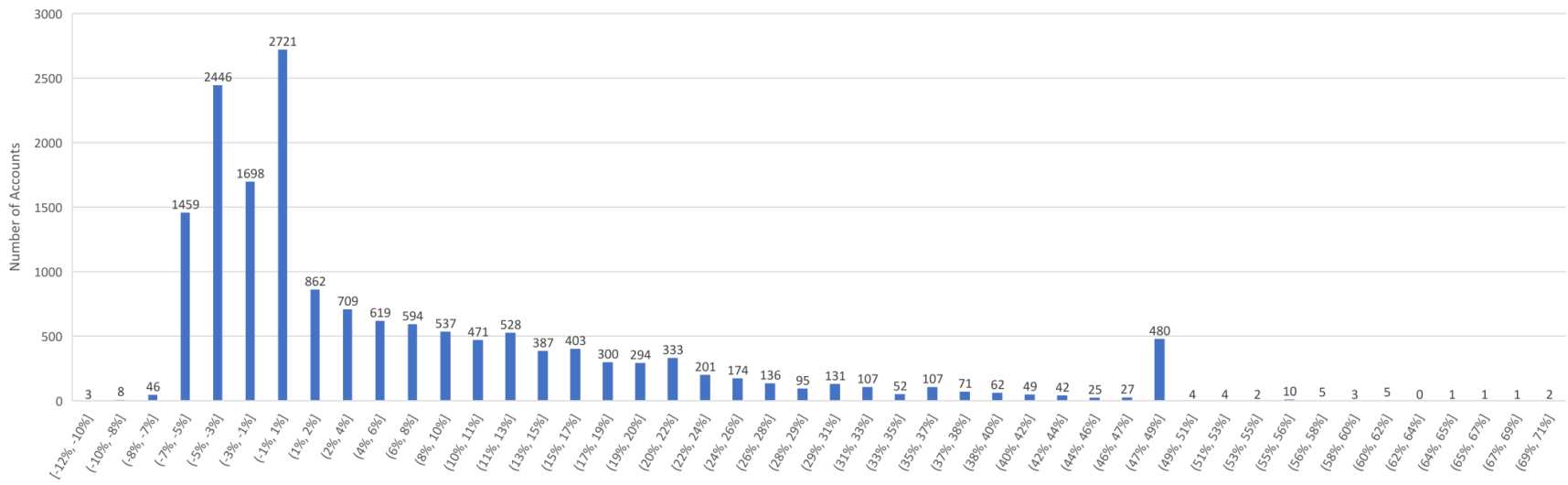


Figure 3: Option 1A Diff % Annual Customer Bill Difference (Industrial)

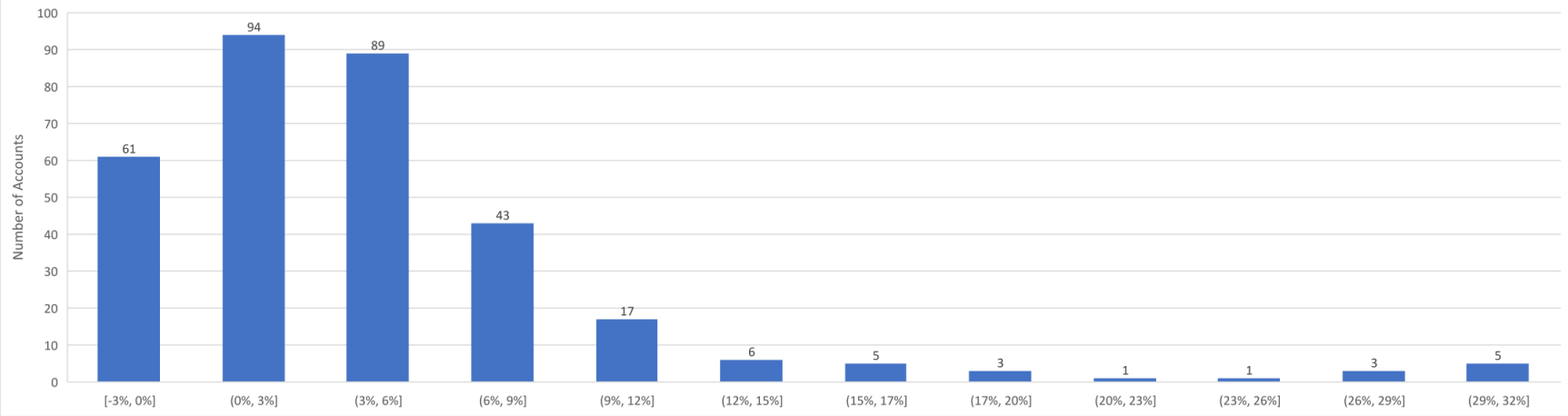


Figure 4: Option 1B % Annual Customer Bill Difference (Industrial)

