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Memorandum

To: Mr. Shean Dalton, General Manager, Brushy Creek Municipal Utility District

From: Mr. Grant Rabon, Partner, NewGen Strategies and Solutions, LLC

Date: June 28, 2024

Re: Drought Water Rate Surcharge

Background

NewGen Strategies and Solutions (NewGen) was contracted by Brushy Creek Municipal Utility District (Brushy Creek MUD) to develop drought water rate surcharges. The primary reason for conducting this analysis is to design surcharges under the various drought stage restrictions that will recover lost revenues associated with consumption reductions during drought periods as well as recover some additional costs associated with enacting and enforcing compliance with the drought stages.

Brushy Creek MUD currently has three drought stage response measures defined in its Drought Contingency and Emergency Water Management Plan. If a Stage 1 Condition exists, the goal is to reach a 20% reduction in daily water demand. For Stage 2 Conditions, the goal is for a 30% reduction in daily water demand. Stage 3 has a goal of reaching a 50% reduction in daily water demand.

Methodology

NewGen's approach to this analysis began with first analyzing several years of billing data to find a 12-month period that experienced normal rainfall to use as a basis for a period of normal consumption. The period of time selected to represent "normal" rainfall was December 2018 through November 2019. Brushy Creek MUD supplies water to approximately 5,743 meters consisting of residential, commercial, irrigation, and commercial fireline customers.

The billing data for this period was summarized by customer class and by month to find the comprehensive water consumption for the normal period. A subset of the residential customers was developed to contain any customer who was billed for less than 6,000 gallons of water in a particular month (aka, Small Use Customers). Given the level of water consumption for Small Use Customers is likely primarily reflective of indoor (non-irrigation) water use, the opportunity for this subset of the residential customer class to reduce water consumption in response to drought stages is limited.

There were several assumptions made to forecast the consumption for each customer class during any given drought stage. One assumption is that commercial fireline and Small Use Customers would not reduce their consumption in any of the four drought stages, as these customers are already consuming a small amount of water and this volume is largely assumed to be essential for health and safety. Another assumption made regarding drought stage consumption is that irrigation customers would reduce their consumptions more than any other customer class and at a constant rate from month to month depending on the drought stage. In order to achieve the overall necessary reductions in water demand for each

drought stage, the irrigation customer class is assumed to reduce water consumption in any given month by 30%, 50%, and 85% for Stages 1, 2 and 3, respectively. Due to fluctuations in consumptions from month to month, the two largest customer classes (commercial and residential) had varying consumption reductions each month. The average monthly consumption rates for any given drought stage are provided in Table 1.

Table 1
Average Percentage of Normal Consumption by Customer Class for each Drought Stage

Customer Class	Normal	Stage 1	Stage 2	Stage 3
Residential	100%	76.75%	65.42%	42.33%
Commercial	100%	75%	63.67%	41.92%
Irrigation	100%	70%	50%	15%
Residential Small Use[1]	100%	100%	100%	100%
Commercial Fireline	100%	100%	100%	100%

1. Residential customers who used less than 6,000 gallons in that particular month.

Brushy Creek MUD has a seasonal rate structure, which exhibits a lower rate in the off-peak season (October through May) and a higher rate in the peak season (June through September). Brushy Creek MUD charges all customers $3.50 per 1,000 gallons during off-peak months, and $4.70 per 1,000 gallons during peak season months. Due to these different rates, the consumption was summarized for peak and off-peak months. The consumption reductions in Table 1 allowed us to determine the overall consumption for the 12-month period for each of the four drought stages and separate this consumption between peak and off-peak seasons. The overall and seasonal drought stage water demand is summarized in Table 2.

Table 2
Annual Consumption (in gallons) for Various Drought Stages and Seasons

Period	Normal Consumption	Stage 1	Stage 2	Stage 3
Off-Peak (October – May)	513,354,000	408,860,750	356,393,560	255,371,370
Peak (June – September)	369,188,000	294,015,200	257,335,720	183,460,270
Annual Total	882,542,000	702,875,950	613,729,280	438,831,640

In order to calculate the revenue lost due to drought restrictions, the seasonal consumption from Table 2 was used to find the reduction in consumption (in 1,000s of gallons) for each particular drought stage and the reduction in consumption was multiplied by each seasonal rate in order to calculate the revenue lost over the 12-month period. The projected lost revenues for a 12-month period for each drought stage is summarized in Table 3. Table 3 also includes the incremental costs estimated by Brushy Creek MUD to be associated with implementing and enforcing drought stages.

Table 3
Annual Lost Revenue by Drought Stage

	Stage 1	Stage 2	Stage 3
Lost Revenue	$ 719,039	$ 1,075,067	$ 1,775,860
Additional Incremental Cost to Recover [1]	226,526	226,526	226,526
Total [2]	$ 945,564	$ 1,301,593	$ 2,002,385

1. Incremental costs provided by Brushy Creek MUD
2. Any deviations due to rounding

To determine the amount of the surcharge needed for each drought stage, the lost revenues for each drought stage were added with an incremental costs associated with the drought restrictions. The total was then divided by the corresponding overall consumption from Table 2 (in 1,000s of gallons) to identify a single amount for each stage of the drought that should be charged in addition to the underlying volumetric rates.

Recommendations

The drought rate surcharges are summarized in Table 4.

Table 4
Proposed Drought Water Rates (per 1,000 gal)

	Current Rates	Stage 1	Stage 2	Stage 3
Drought Surcharge	**$ -**	**$ 1.35**	**$ 2.13**	**$ 4.57**

NewGen recommends Brushy Creek MUD implement the new drought rate surcharges as soon as practical. As summarized in Table 5, the annual water revenues are forecasted under the various drought stages.

Table 5
Forecasted Revenues with Proposed Drought Surcharges

	Normal	Stage 1	Stage 2	Stage 3
Annual Water Revenues	$ 3,531,923	$ 3,761,767	$ 3,764,099	$ 3,761,524

Summary

NewGen recommends that Brushy Creek MUD implement the drought water surcharges as outlined in this memorandum in order to recover the lost revenues from reductions in consumption under drought stage restrictions as well as incremental costs associated with enacting and enforcing compliance with the drought stages. It is important to note that reductions in consumption could vary for each customer in response to drought stage restrictions. However, it is assumed that enforcement of drought restriction policies will yield consumption levels similar to what has been forecasted in this analysis, and the proposed surcharges will, therefore, help to maintain the financial integrity of the water utility.