

# Issue Paper 4: Consolidated Consumption Billing and the Tualatin Valley Water District

## Introduction

This issue paper will explore the practice of aggregating, or consolidating, consumption for the purpose of billing multiple metering points under an account as if they were a single metering point for non-residential customers. This issue paper will also review how consolidated consumption billing might apply specifically to the Tualatin Valley Water District (TVWD or the “District”). This issue is isolated to non-residential customers who have more than one metered account, and where multiple meters are currently billed to the same account/property owner. Currently, each metering point is treated as a separate billing, but under consolidation, the consumption from each meter would be combined when calculating the consumption bill under TVWD’s current rate structure. The current fixed meter charge would be maintained and charged for each meter providing service.

## Overview of the Issue

There are a number of consumption rate structures used by water utilities throughout the United States. The consumption rate structures can range, in the simplest form, from a uniform rate, a declining block (tiered) rate structure, or an increasing block (tiered) rate structure. TVWD’s current non-residential rate structure is an increasing block rate structure with two blocks. The size of the first block is based on the customer’s consumptive use up to 140% of the individual customer’s 12-month moving average. During a billing period, all consumption over 140% of the 12-month moving average is billed at the second, and higher priced, block rate.

Combining consumptive use under a uniform rate structure would not be beneficial to the customer as all consumption is billed at the same rate regardless of the consumptive use. As a result, utilities with a uniform rate structure would not be impacted by the consolidation of consumption for billing purposes.

The consolidation of consumption can impact a customer’s bill when there is a block rate structure. Specifically, a declining block structure with fixed block sizes becomes less expensive as more consumption occurs given the higher consumption is priced at a lower rate. If the sizing of the blocks is similar to the approach used by TVWD, which is not strictly volume-based but rather peak use based, consolidation may or may not be advantageous. It would likely require a high peak use customer to be able to benefit from consolidation. However, TVWD does not have a declining block rate structure and therefore this is not a concern of this paper. Furthermore, declining block rate structures are becoming less common as water resources are now scarcer and conservation is an important goal of most utilities.

Under a typical increasing block rate structure, a customer generally would not benefit from consolidating consumption since block sizes are usually fixed amounts, and greater use simply means more consumption is billed in the last, and most expensive, block. For example, assume

a rate structure which has fixed block sizes of 0 – 30,000 CCF and over 30,000 CCF. The customer has two meters which both use an average of 20,000 CCF/month. Under the current billing, all consumption is billed in the first block since each meter does not exceed the 30,000 CCF threshold. However, under consolidated billing, the resulting bill would have the first 30,000 CCF billed at the lower priced block rate and the remaining 10,000 CCF at the higher priced block rate. In this case, the customer would not benefit from consolidated billing and would actually pay more.

In TVWD’s case, block sizes are not fixed as provided in the above example. Under TVWD’s rate structure, it is possible to combine or consolidate consumption and have a customer benefit. Whether this is a unique situation specific to certain customers or appropriate as a billing approach is the key issue to be reviewed and resolved. In reviewing this issue, TVWD will also need to determine the estimated revenue impact, if any.

## **Review of Other Non-Residential Rate Structures**

To review this issue in more detail and gain an understanding of other utility practices, the rate structures of other utilities were reviewed to determine if consolidating consumption for multiple meters was applicable or if the utility had a specific policy related to consolidating consumption. Many of the utilities reviewed used uniform rates for all customers, or specifically for non-residential customers. A few utilities had block rates but also had written into their code that a customer cannot consolidate consumption in a way that would result in a reduction of their bill. Another variation in rate structure was the use of seasonal rates. Similar to a uniform rate, a customer would not typically benefit from consolidated consumption under a seasonal rate structure.

The following table provides a summary of the utilities reviewed and the rate designs for the non-residential customers along with those that include a policy for consolidated billing.

Table 1  
Sample of Other Utility Non-Residential Rate Structures

Utility	Non-Residential Rate Structure	Consolidated Billing Policy
<b>State of Oregon</b>		
Tualatin Valley Water District	2 Block Rate Structure Based on 12-Month Moving Average	No
Astoria Public Works Dept.	Uniform Rate Structure	No
Eugene Water & Elec. Board	Uniform Rate Structure	Yes
City of Gresham	Uniform Rate Structure	No
City of Medford	3 Block Rate Structure	Yes
Portland Water Bureau	Uniform Rate Structure	Yes
Salem Public Works	Uniform Rate Structure	Yes
<b>Other Utilities</b>		
Calif. Water Serv. Bakersfield	Uniform Rate Structure	No
Glendale (CA) Water & Power	Uniform Rate Structure	No
City of Aurora (CO)	2 Block Rate Structure Based on Average Demand	No
Dist. of Columbia W&S Auth.	Uniform Rate Structure	No
City of Henderson (NV)	4 Block Rate Structure based on meter Size	No
Las Vegas Valley Water Dist.	4 Block Rate Structure based on meter Size	No
Granger-Hunter Impr. Dist (UT)	Uniform Rate Structure	No
Alderwood W&S District (WA)	3 Block Rate Structure based on meter Size	No
Seattle Public Utilities	3 Block Seasonal Rate Structure	No
City of Spokane (WA)	4 Block Rate Structure	No
Tacoma Public Utilities (WA)	Uniform Rate Structure	No
City of Vancouver (WA)	Uniform Rate Structure	Yes

For those utilities that identified a specific policy on consolidation, none allowed for consolidating consumption for billing purposes. It should be noted that the reviewed utilities that did not specifically allow consolidation all had a uniform rate structure.

## Examples of Consolidating Consumption Billing

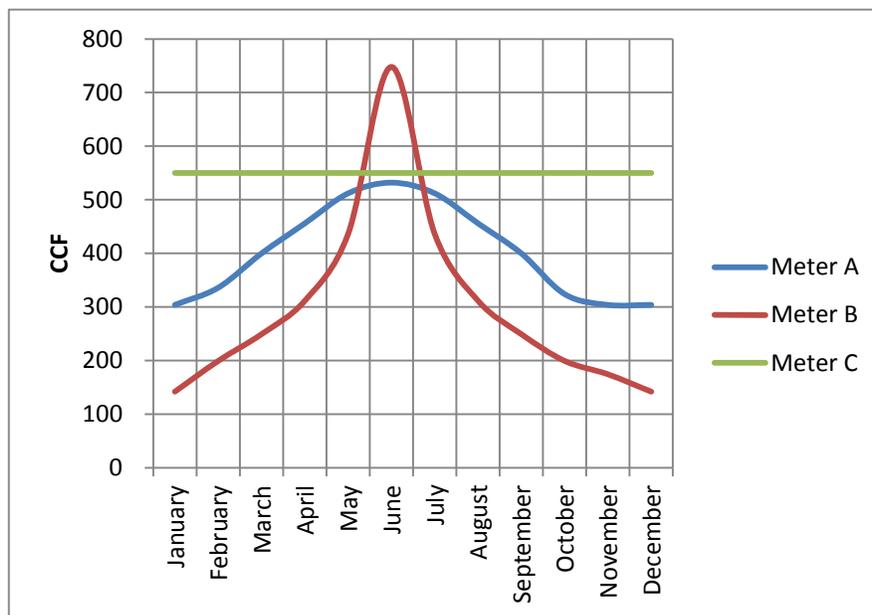
Given the method of establishing the block sizes for TVWD’s non-residential customers, consolidating consumption could be an opportunity for some customers to reduce their overall bill depending on the specific consumption patterns of the customers’ meters to be consolidated. An example of this would be if one meter had a flat demand while the other meter had a high peak demand. Under TVWD’s rate structure, consolidating the metered consumption would average the two consumption patterns, and depending on the total use in each meter, could result in additional consumption staying within the first (lower priced) block. However, as noted previously, consolidation would only reduce the bill for those customers with specific

consumption patterns that under consolidation results in an increase in the block 1 size and reduction in block 2.

To better illustrate this unique circumstance, two fictitious customer profiles were developed to model how consolidating consumption may impact the bill. Variables that were modeled were for a customer with 3 meters, varying consumption patterns, and various levels of total consumption during the billing period. It should be noted that there are an unlimited number of possible scenarios where some customers may see no change in the overall bill, examples where a customer may see a reduction of minor proportions to a significant proportion, and there are some customers where it would not be beneficial to the customer to consolidate. Given that, customers would most likely not consolidate meters unless it was beneficial to their bill.

The following chart provides a scenario where there are three meters with various total consumption and different consumption patterns. This includes meters with a flat seasonal demand but high use, a moderate peak demand with moderate use, and a high peak demand with low overall use.

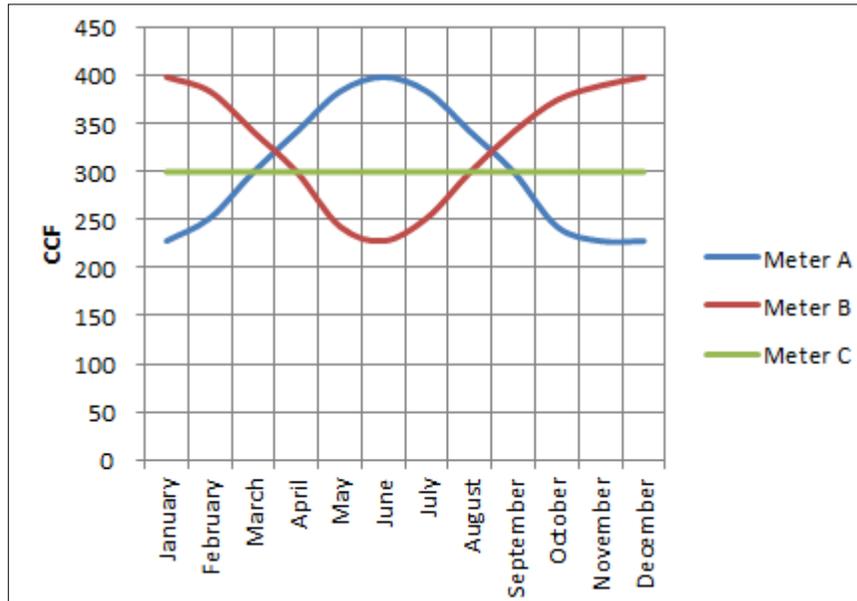
**Chart 1**  
**Diverse Loads**



Using TVWD’s rates, this particular example yields approximately a 0.8% reduction in overall bill, or an annual savings of approximately \$400 out of a total combined bill of approximately \$50,000.

Another scenario was modeled with three meters at separate properties where one meter has flat peak demand, and the other two meters have opposite peaks, offsetting one another. This scenario yielded no change in the annual bill.

**Chart 2  
Offsetting Loads**



## Cost of Service and Administrative Considerations

While a customer may benefit directly from the practice of consolidation, there may be other issues which should be taken into consideration. First, TVWD has established block rates with the intent of equitably assigning costs. Customers which place greater peak demands on the system should pay an equitable share of the capacity on the system. This not only has the benefit of providing an equitable allocation of costs to the customer, it provides a price signal to the customer regarding peak use. Peak use is the most expensive portion of consumption on the system since it requires investment in infrastructure to handle the highest peak demands, yet those high peak demands are for a short duration. Therefore, utilities want to encourage demand management from their customers. By consolidating consumption, a customer may not pay for the high peak demand they are placing on the system, and avoid the Block 2 pricing they incurred, but avoided, via consolidation. Some customers (i.e. those with the inability to consolidate consumption) may view that practice as inequitable.

One of the more challenging aspects of consolidation, and likely the reason it is not a common utility/business practice, is the administration of the consumption consolidation. The question is whether any customer with multiple meters should be automatically consolidated, even if it works to their disadvantage. At the same time, should consolidation be an optional approach? Administratively, it is much more straight-forward to bill each meter separately and avoid the complexity and administrative issues that come along with consolidation.

## Conclusion

As discussed, the consolidation of consumption may or may not impact the annual bill for non-residential customers. It may be beneficial when the customer's multiple metering points have

consumption patterns and consumption levels which, when consolidated, result in a higher Block 1 size, and lower Block 2. Of the utilities researched, none explicitly stated that consolidated consumption was allowed and several explicitly disallowed the practice.

Another consideration discussed above is whether consolidation of consumption would violate the principles of an equitable allocation of costs. Cost of service principles dictate that those who create the peak demands should pay for the peak demands. Under consolidation, that may or may not be the case. It may be argued that a customer with off-setting loads does not place a large demand on the system. Demands are used to size supply and distribution facilities. Having an offsetting load might only be beneficial for the distribution system if the properties that are consolidated are adjacent or served from the same line. Conversely, if the properties are in entirely different locations relative to the local water distribution mains, there would be little or limited benefit to the distribution system.

In summary, consolidation of consumption for billing purposes does not appear to be a common industry practice and seems to ignore certain basic cost-of-service principles. While certain customers may benefit from consolidated consumptive billing, there may be many more customers that do not benefit.