

DATE: August 24, 2015  
 TO: Rosemary Menard  
 FR: David Mitchell  
 RE: Corrected Demand Forecast

During a review by Maddaus Water Management of the draft econometric demand forecast presented to the WSAC in July, an error in the plumbing code water savings forecast was identified which caused the production forecast to be understated by approximately 200 MGY. The plumbing code forecast from the Maddaus Water Management’s DSS model was not in error. Rather, the error occurred when M.Cubed disaggregated the plumbing code savings into customer class water savings and re-expressed these savings in CCF/service so they could be used with the econometric demand model. Unfortunately, we did not catch the coding error until after the draft forecast was presented to the WSAC in July. The forecast presented to the WSAC in July, the corrected forecast, and the WSAC interim forecast are shown in the following table. The corrected forecast is approximately 7 percent greater than what was presented in July.<sup>1</sup>

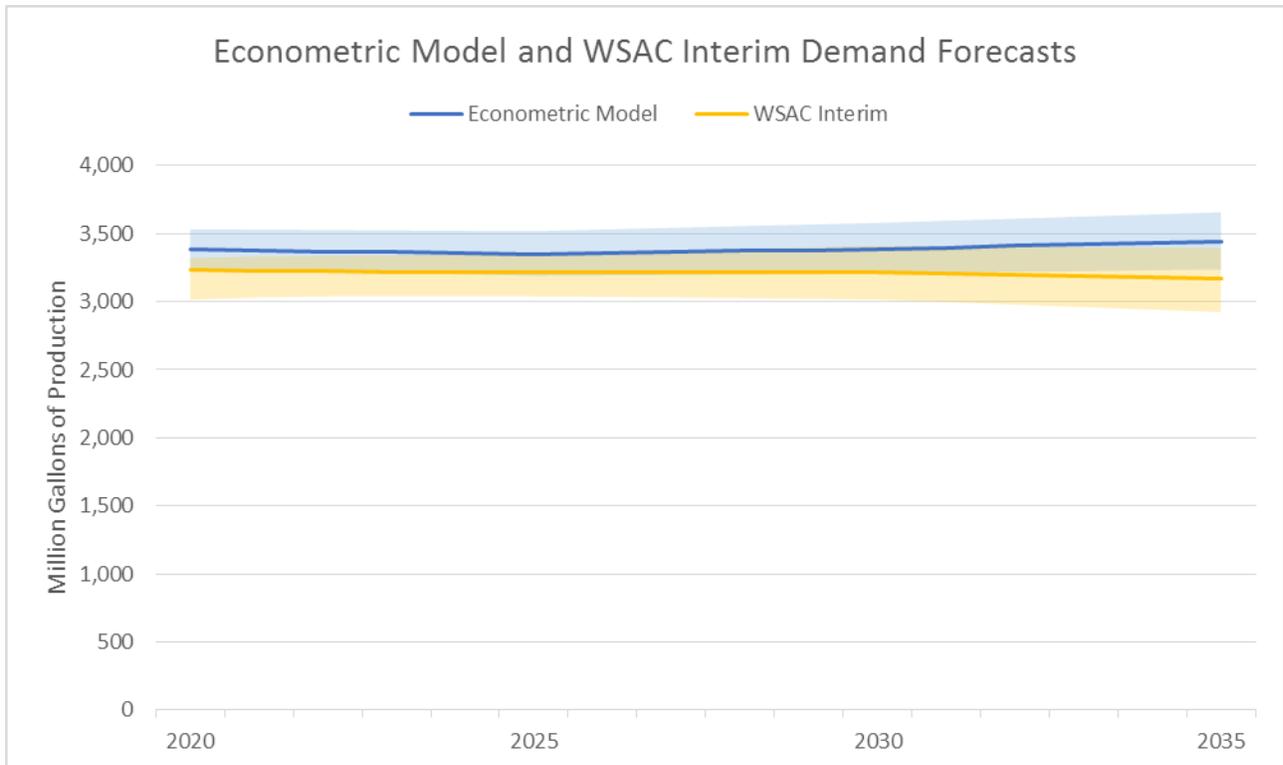
YEAR	2020	2025	2030	2035
	Forecast	Forecast	Forecast	Forecast
Unrounded				
July (with Plumbing Code Savings Error)	3,132	3,123	3,160	3,215
Corrected	3,385	3,351	3,388	3,442
WSAC Interim	3,236	3,213	3,218	3,169
Rounded				
July (with Plumbing Code Savings Error)	3,100	3,100	3,200	3,200
Corrected	3,400	3,400	3,400	3,400
WSAC Interim	3,200	3,200	3,200	3,200

The chart on the following page compares the WSAC interim forecast to the corrected econometric forecast. It also shows the uncertainty band around each forecast. The uncertainty band on the econometric forecast is based on the 95% confidence intervals for the class-level average use per service forecasts developed with the econometric models. The uncertainty band on the WSAC interim forecast is the range between the low and high interim forecasts presented at the April WSAC meeting. From the chart it is seen that the corrected econometric forecast represented by the dark blue line essentially tracks the upper-bound of the WSAC interim forecast while the WSAC interim forecast represented by

<sup>1</sup> Both the econometric and interim forecasts are assuming average weather, no restrictions on water use, and normal economic conditions. Neither forecast includes the incremental water savings from Program C REC.

the dark yellow line essentially tracks the lower-bound of the corrected econometric forecast. Between these two lines, the forecasts overlap. Future production in the range of 3,200 to 3,400 MGY is consistent with both forecasts.

A more conservative uncertainty band obtained by taking the union of the two forecasts suggests future production in the range of 3,000 to 3,500 MGY over most of the forecast period, with a slightly wider band in the last five years of the forecast.



It is important to note that the econometric models were not impacted by the plumbing code savings error. The error occurred during the post-processing of the econometric model results and did not affect in any way the data used to estimate the econometric models or the resulting model parameter and elasticity estimates.

While it is not uncommon to find errors of this type in draft forecast work products, we apologize for not having detected it sooner. We also want to thank Maddaus Water Management for their diligent review of the draft forecast and helping us to identify and resolve the error.