

## Revenue Forecast Uncertainty Report

March 2025

### Summary of Revenue Forecast Uncertainty for the Current Biennium

In Minnesota's February 2025 *Budget and Economic Forecast*, total revenues for FY 2024-25 are forecast to be \$61.728 billion. This forecast was constructed five months before the current biennium closes. If this forecast turns out to have the same degree of accuracy as the average of our five-month-ahead forecasts, we can expect FY 2024-25 closing revenues to be between \$61.098 and \$62.358 billion (+/- \$630 million).

Total revenues for FY 2026-27 are forecast to be \$64.494 billion. This forecast was constructed 29 months before the close of the biennium. If this forecast is consistent with average accuracy of our 29-months-ahead forecasts, we can expect FY 2026-27 closing revenues to be between \$60.964 and \$68.024 billion (+/- \$3.53 billion).

### Estimating Revenue Forecast Uncertainty

The forecast error, equal to the difference between the level of revenues collected and the level of revenues forecast for a biennium, is a measure of a forecast's accuracy. Forecast accuracy improves as the time to the biennium's close becomes shorter, that is, the errors become smaller in size as we approach the end of a biennium. A common approach to measuring forecast accuracy is to compute the mean absolute error (MAE): the average of the errors' absolute values (that is, MAE is the average of the magnitudes of the errors ignoring negative signs). Each biennium's revenues will be forecast six times before the biennium closes: at 32, 29, 20, 17, 8 and 5 months ahead of closing. Therefore, each closed biennium has six forecast errors, one for each month-ahead time, and we calculate separate forecast error statistics (such as the MAE) for each months-ahead time (32-months-ahead, 29-months-ahead, etc.). Currently, we compute forecast statistics using the forecast errors for the FY 1990-91 through the most recent closed period, FY 2022-23.

We measure our forecast error as the difference between actual and forecast non-dedicated revenues, while the focus in the *Budget and Economic Forecast* is on total revenues. Non-dedicated and total revenues differ due to receipt of dedicated revenues, transfers, and prior year adjustments. We calculate our forecast error on non-dedicated revenues because it includes all general fund tax and non-tax revenues, the revenues that are the most challenging to forecast accurately. For FY 2024-25, non-dedicated revenues are forecast to be \$61.375 billion, and the forecast for total revenues is \$61.728 billion, a difference of \$352 million. For FY 2026-27, non-dedicated revenues are forecast to be \$64.103 billion and the forecast for total revenues is \$64.494 billion, a difference of \$391 million.

The most recent forecast for FY 2024-25 is the third February forecast, five months ahead of closing. The MAE for five-months-ahead forecasts is 1.0 percent of non-dedicated revenues which is approximately \$630 million (\$0.63 billion) for the current biennium. Consequently, the range of closing values for FY 2024-25 total revenues is \$61.728 billion +/- \$0.63 billion, or \$61.098 to \$62.358 billion.

The current forecast for FY 2026-27 is the first February forecast, 29 months ahead of closing. The MAE for 29-months-ahead forecasts is 5.5 percent of non-dedicated revenues, or about \$3.53 billion for the next biennium. Consequently, the range of closing values for FY 2026-27 total revenues is \$64.494 billion +/- \$3.53 billion, or \$60.964 to \$68.024 billion.

Another way to measure the degree of forecast uncertainty is to calculate a confidence range (CR) for our estimates. A 90 percent CR for our revenue forecast is the range of values that should contain the actual value for total revenues 90 out of 100 times based on statistical theory. As with the MAE, we calculate the CR as a percentage of non-dedicated revenues. Both the MAE and the CR get smaller as then end of biennium draws nearer.

For FY 2024-25, the 90 percent confidence range for total revenues is \$61.728 +/- \$1.37 billion (+/- 1.37 percent), or \$60.358 to \$63.098 billion.

For FY 2026-27, the 90 percent confidence range for total revenues is \$64.494 +/- \$7.05 billion (+/- 11.0 percent), or \$57.444 to \$71.544 billion.

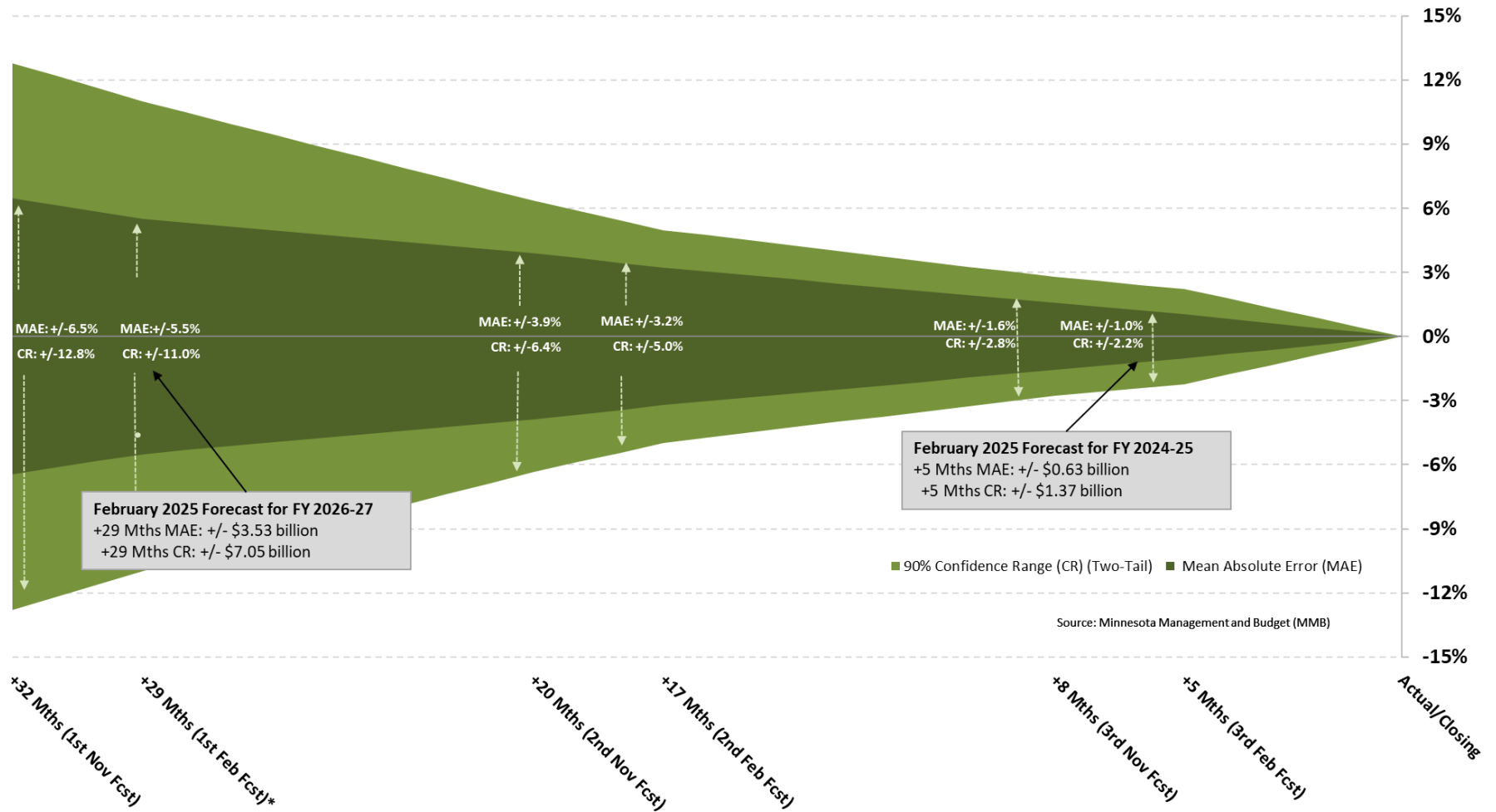
Note that all the error measures reported here relate only to the state's revenue forecasts and do not include errors in forecasting state expenditures.

### **Sources of Revenue Forecast Uncertainty**

Actual revenue collections never *precisely* match the forecast for a wide range of reasons. First, economic data from time periods preceding a forecast (such as employment or consumer spending data) are not perfectly measured and are frequently revised after they are used to construct a forecast. Second, even if past U.S. economic data *were* perfectly measured, modeling errors and the inability to predict all future events that affect the economy would prevent our macroeconomic consultant from perfectly forecasting the important economic variables. Third, errors in the U.S. forecast, in Minnesota's data history, and in our own imperfect modeling, introduce inaccuracies into our forecast of the state's economy. Fourth, even if the Minnesota economy *were* forecast with perfect accuracy, our forecasts of Minnesota tax revenues would still contain some error. This is because of imperfections in our revenue forecasting models, mismatches between the economic and tax definitions of income and spending items, inconsistencies in the timing of receipts from a given year's tax liability, uncertainty about the revenue impacts of changes in state tax laws, and because of the effects of unforeseeable events.

# Average Revenue Forecast Uncertainty over Minnesota's Budget Cycle

% of Net Non-Dedicated Revenue , Sample Period: FY1990-91 to FY2022-23



\* +29 Mths (1st Feb) represents the MMB forecast on which the original budget for the biennium was based.

Notes: Adjusted for the effects of legislation. MMB uses the mean-absolute error (MAE) as a measure of accuracy in its evaluation of forecast uncertainty. MAE is calculated by averaging forecast deviations from actual without regard to arithmetic sign. Under the assumption that tax policies do not significantly change, a 90% confidence range (CR) is a measure based on our sample budget data, reporting that 90% of the times the lightest range will contain the actual value for total revenues.