Division of Bond Finance
Interest Rate Calculations

Revenue Estimating Conference
Interest Rates Used for Appropriations,
including PECO Bond Rates

December 16, 2019
Division of Bond Finance  
Calculation of Long-Term Interest Rate

### Prior Conference Data [July 17, 2019]

<table>
<thead>
<tr>
<th>Long-Term Interest Rate Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Long-Term Interest Rate ¹</td>
</tr>
<tr>
<td>Plus: Volatility Spread ²</td>
</tr>
<tr>
<td><strong>Long-Term Interest Rate Range</strong></td>
</tr>
<tr>
<td><strong>Recommended Long-Term Interest Rate for FY 2020-21</strong></td>
</tr>
</tbody>
</table>

1. Interest rate estimate for a 30-year bond issue based on estimated yields and credit spreads as of July 12, 2019.
2. Used two measures to calculate interest rate volatility; (1) TM3 Municipal Market Data (“MMD”) high-low range over the prior 12 months of 116 basis points and (2) Bond Buyer 11 GO Bond Index maximum annual change over the last 20 years of 75 basis points.

### Updated Data [December 16, 2019]

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1. Interest rate estimate for a 30-year bond issue based on estimated yields and credit spreads as of December 6, 2019.
2. Used two measures to calculate interest rate volatility; (1) TM3 Municipal Market Data (“MMD”) high-low range over the prior 12 months of 135 basis points and (2) Bond Buyer 11 GO Bond Index maximum annual change over the last 20 years of 75 basis points.

**Long-Term Interest Rate Recommendation:**

Based on the interest rate range noted above, which is based on the Division of Bond Finance’s (the “Division”) historical methodology that analyzes interest rate trends and volatility over the past 20 years and most recent 12-month period, the Division would recommend maintaining the current long-term interest rate for appropriation purposes at 5.00%.

While our methodology shows a range of 4.02% to 4.62% for the long-term interest rate, the Division believes that a more conservative estimate is warranted given that the exceptionally favorable market conditions that the municipal market is currently experiencing cannot be guaranteed to hold through FY 2020-21 (approximately 12-18 months from today).
Tax-exempt interest rates are currently benefitting from a significant supply/demand imbalance, with municipal bond funds reporting 47 consecutive weeks of positive fund flows (nearly $84 billion of inflows in calendar year 2019 to-date). The supply of municipal bonds has increased in 2019, but a significant portion of the increase is attributable to taxable advance refunding transactions. Through November 2019, tax-exempt bond issuance was up 8.8% year-over-year while taxable issuance had increased 104.4% over the same period of the prior year. Additionally, the Federal Reserve has lowered the benchmark interest rate three times in 2019 which has helped push interest rates lower (though no additional rate cuts are anticipated through 2020). These factors have combined to create a very favorable market for municipal bonds. However, the municipal market may face increased interest rate volatility in the coming months due to political events, including the presidential election in November 2020 (and the potential for further income tax reform), the ongoing US-China trade war, and Brexit.

* The Division of Bond Finance has supplied the above interest rates to assist the REC in adopting official rates that would be used by State agencies for planning and budgetary purposes for Fiscal Year 2020-21. There can be no assurance that actual interest rates for any particular bond issue will not exceed the rates shown above.
**Short-Term Interest Rate Recommendation:**

The short-term interest rate recommendation was used to calculate debt service on the outstanding Everglades variable rate debt; that debt issue was refunded with fixed-rate bonds and called for redemption on December 4, 2019. There are now no variable rate bonds outstanding and the Division has no plans to recommend issuing any additional variable rate debt for any State debt program at this time. As a result, an estimated short-term rate for appropriations purposes is not currently necessary.
Long-Term Interest Rate Volatility
Change in Bond Buyer 11 GO Bond Average Annual Interest Rates
Last 20 Years

The maximum change in the annual average Bond Buyer GO Bond Index over the last 20 years is 75 basis points.

1 Average calculated using absolute values of year-over-year changes.
Long-Term Interest Rate Volatility
Change in 30-Year MMD AAA Rates
Last 12 Months

The 30-year MMD AAA interest rate ranged from a low of 1.82% to a high of 3.17% over the last 12 months, a difference of 135 basis points. These are stated yields assuming 5% coupons and do not factor in costs or issuance, underwriter’s discount, or call optionality.