

Interest Rates Used in Appropriations, Including PECO Executive Summary

July 17, 2019

The Revenue Estimating Conference adopted a series of interest rates for use in the state budgeting process, including any bonding related to Public Education Capital Outlay (PECO). The adopted interest rates take into consideration current benchmark rates and market volatility.

The long-term interest rate is used for bond issues with maturity structures of 20 years or more. The Conference affirmed the long-term interest rate of 5.00% adopted in February 2019. This rate matches the Division of Bond Finance’s recommendation. The adopted rate of 5.00% reflects current market conditions, and is based on benchmark rate of 3.37% plus a spread of 163 basis points for volatility.

Long-Term Interest Rate

Fiscal Year	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
Interest Rate	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%

The Conference also agreed with the Division of Bond Finance’s recommendation to retain the short-term (or variable) interest rate of 3.25%. The average short-term interest rate for Everglades bonds over a recent 12-month review period was 1.58%. This rate affects the calculated debt service on an outstanding bond.

Finally, the Conference adopted interest rates for use by the Revenue Estimating Conference in its calculation of the Maximum Appropriations for Public Education Capital Outlay (PECO). The adopted interest rates take into consideration current benchmark rates and the July 2019 National Economic Estimating Conference forecast for the yield on municipal bonds – the Bond Buyer 20-Bond Index.

PECO Bonds Interest Rate

Fiscal Year	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
Interest Rate - February 2019	5.00%	5.00%	5.00%	5.25%	5.25%	NA
Interest Rate - July 2019	4.75%	5.00%	5.00%	5.25%	5.25%	5.25%

**Division of Bond Finance
Interest Rate Calculations**

Revenue Estimating Conference

Interest Rates Used for Appropriations,
including PECO Bond Rates

July 17, 2019

Division of Bond Finance

Calculation of Long-Term Interest Rate

<i>Prior Conference Data [November 16, 2018]</i>		
Long-Term Interest Rate Information		
Current Long-Term Interest Rate ¹	4.09%	4.09%
Plus: Volatility Spread ²	0.75%	1.00%
Long-Term Interest Rate Range	4.84%	5.09%
Recommended Long-Term Interest Rate for FY 2019-20	5.00%	

¹ Interest rate estimate for a 30-year bond issue based on estimated yields and credit spreads as of November 14, 2018.

² Used two measures to calculate interest rate volatility; (1) TM3 Municipal Market Data ("MMD") high-low range over the prior 12 months of 100 basis points and (2) Bond Buyer 11 GO Bond Index maximum annual change over the last 20 years of 75 basis points.

<i>Updated Data [July 17, 2019]</i>		
Long-Term Interest Rate Information*		
Current Long-Term Interest Rate ¹	3.37%	3.37%
Plus: Volatility Spread ²	0.75%	1.16%
Long-Term Interest Rate Range	4.12%	4.53%
Recommended Long-Term Interest Rate for FY 2020-21	5.00%	

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.

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 4.12% to 4.53% 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 12-24 months from today).

Interest rates are currently benefitting from a significant supply/demand imbalance, with municipal bond funds reporting 27 consecutive weeks of positive fund flows (nearly \$50 billion of inflows in calendar year 2019). July is also traditionally the municipal bond market's biggest month for principal payments, and as a result investors who have had bonds in their portfolio mature have cash that they need to reinvest in the municipal market. From a supply perspective, the volume of municipal bonds issued nationally was down over 17% from FY 2017-18 to FY 2018-19. All of these factors have combined to create a very favorable market for municipal bonds from an interest rate perspective.

Given that the Division's methodology for the development of the long-term interest rate starts with an estimate of the interest rate on a 30-year bond using current estimates, the results are being directly influenced by the confluence of market factors that have resulted in the demand for municipal bonds exceeding the supply of bonds available for investors to purchase.

** 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.*

Division of Bond Finance

Calculation of Short-Term Interest Rate

<i>Prior Conference Data [November 16, 2018]</i>		
Short-Term Interest Rate Information		
Average Everglades 2007AB Rate in Past Twelve Months	1.37%	1.37%
Plus: Volatility Spread ¹	1.50%	2.00%
Short-Term Interest Rate Range	2.87%	3.37%
Recommended Short-Term Interest Rate for FY 2019-20	3.25%	

¹ Uses the volatility from the two largest year-over-year changes in SIFMA rates over the past 20 years of between 150 basis points and 200 basis points.

<i>Updated Data [July 17, 2019]</i>		
Short-Term Interest Rate Information*		
Average Everglades 2007AB Rate in Past Twelve Months	1.58%	1.58%
Plus: Volatility Spread ¹	1.50%	2.00%
Short-Term Interest Rate Range	3.08%	3.58%
Recommended Short-Term Interest Rate for FY 2020-21	3.25%	

¹ Uses the volatility from the two largest year-over-year changes in SIFMA rates over the past 20 years of between 150 basis points and 200 basis points.

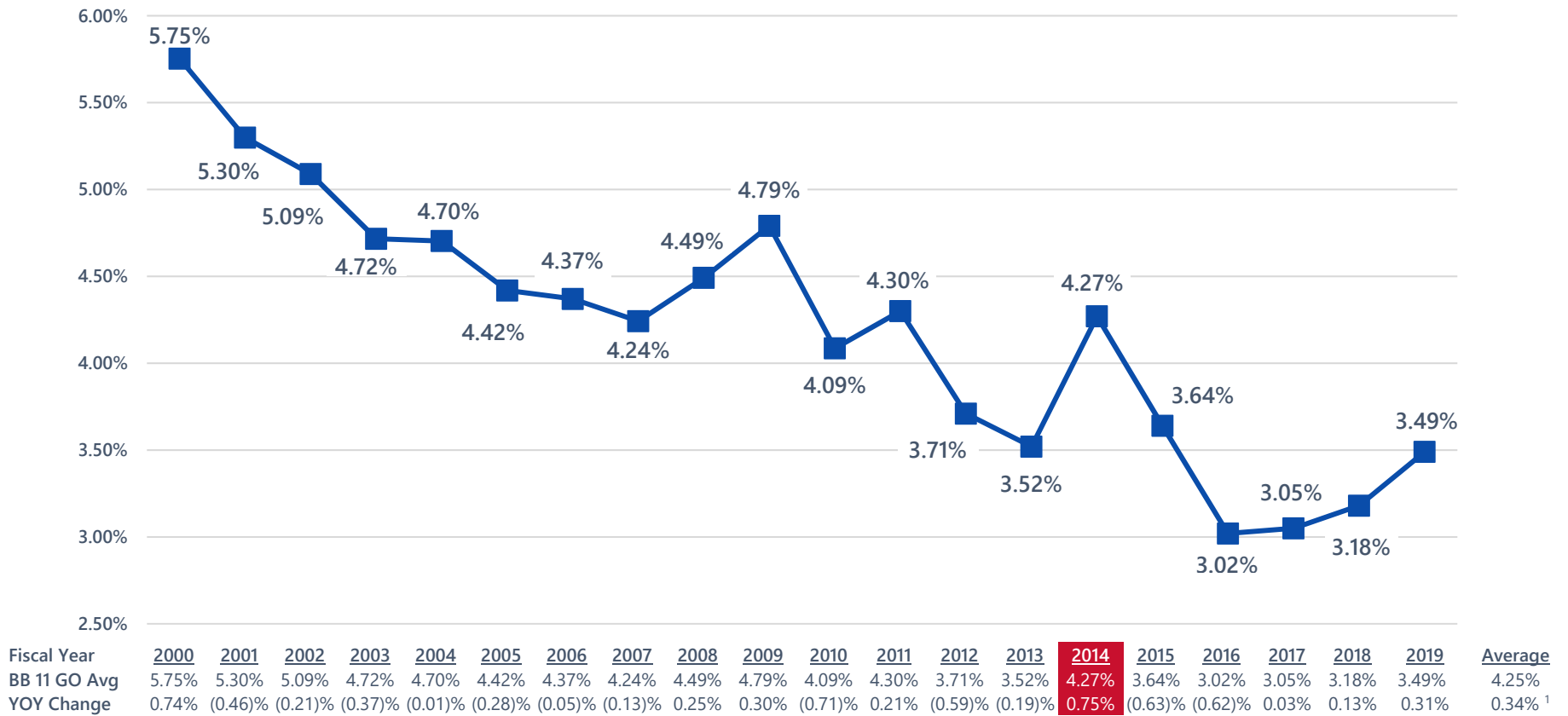
Short-Term Interest Rate Recommendation:

Using the interest rate range noted above, which is based on the Division of Bond Finance's historical methodology that analyzes short-term interest rate volatility over the past 20 years, the Division would recommend maintaining the short-term interest rate for appropriation purposes at 3.25%.

* 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.

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.

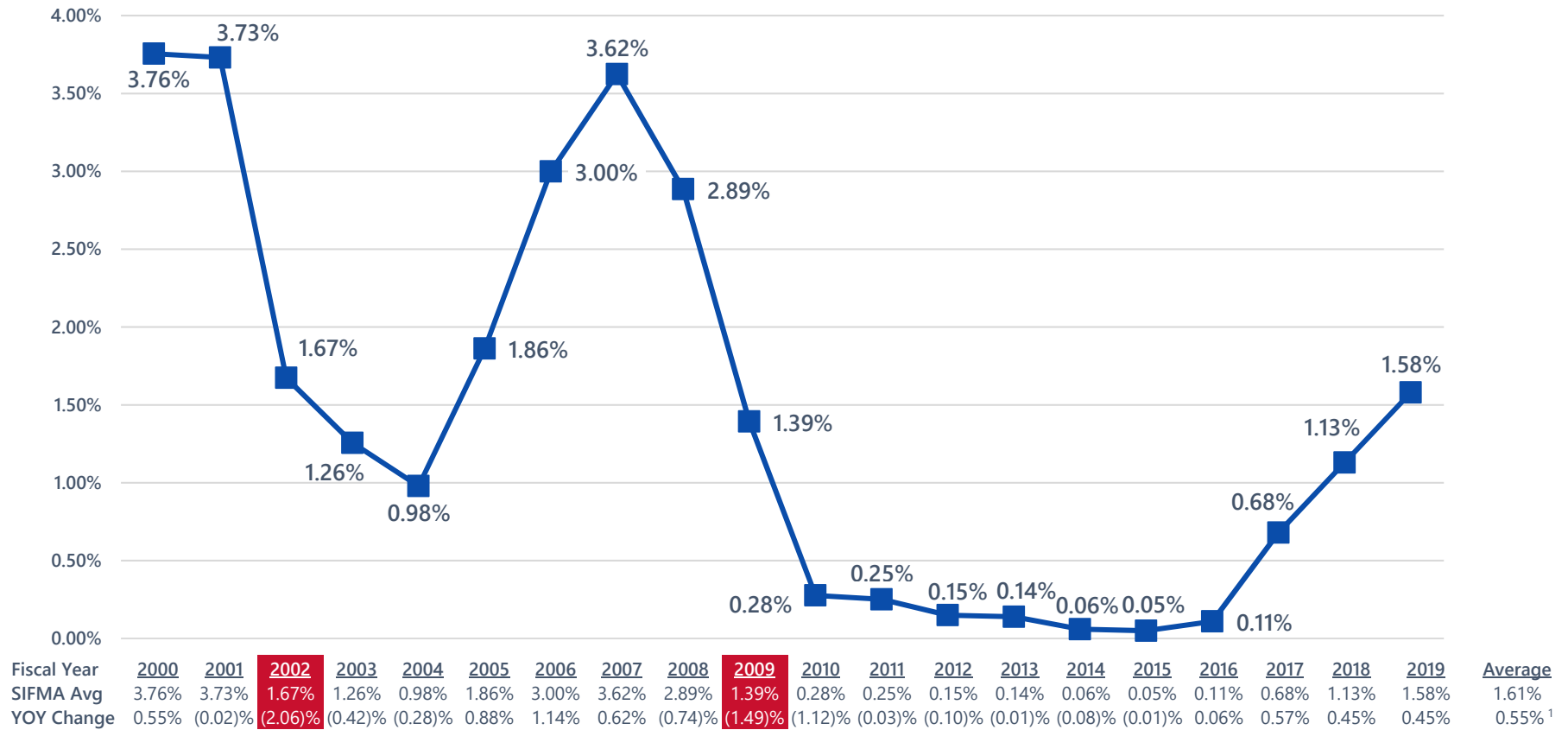
Long-Term Interest Rate Volatility Change in 30-Year MMD AAA Rates Last 12 Months

The 30-year MMD AAA interest rate ranged from a low of 2.30% to a high of 3.46% over the last 12 months, a difference of 116 basis points.



Short-Term Interest Rate Volatility Change in SIFMA Annual Average Interest Rates Last 20 Years

The maximum annual change in the SIFMA Index over the last 20 fiscal years is 206 basis points, with 149 basis points representing the next largest annual change.



¹ Average calculated using absolute values of year-over-year changes.

Short-Term Interest Rate History

Average Everglades Bonds Variable Rate Resets

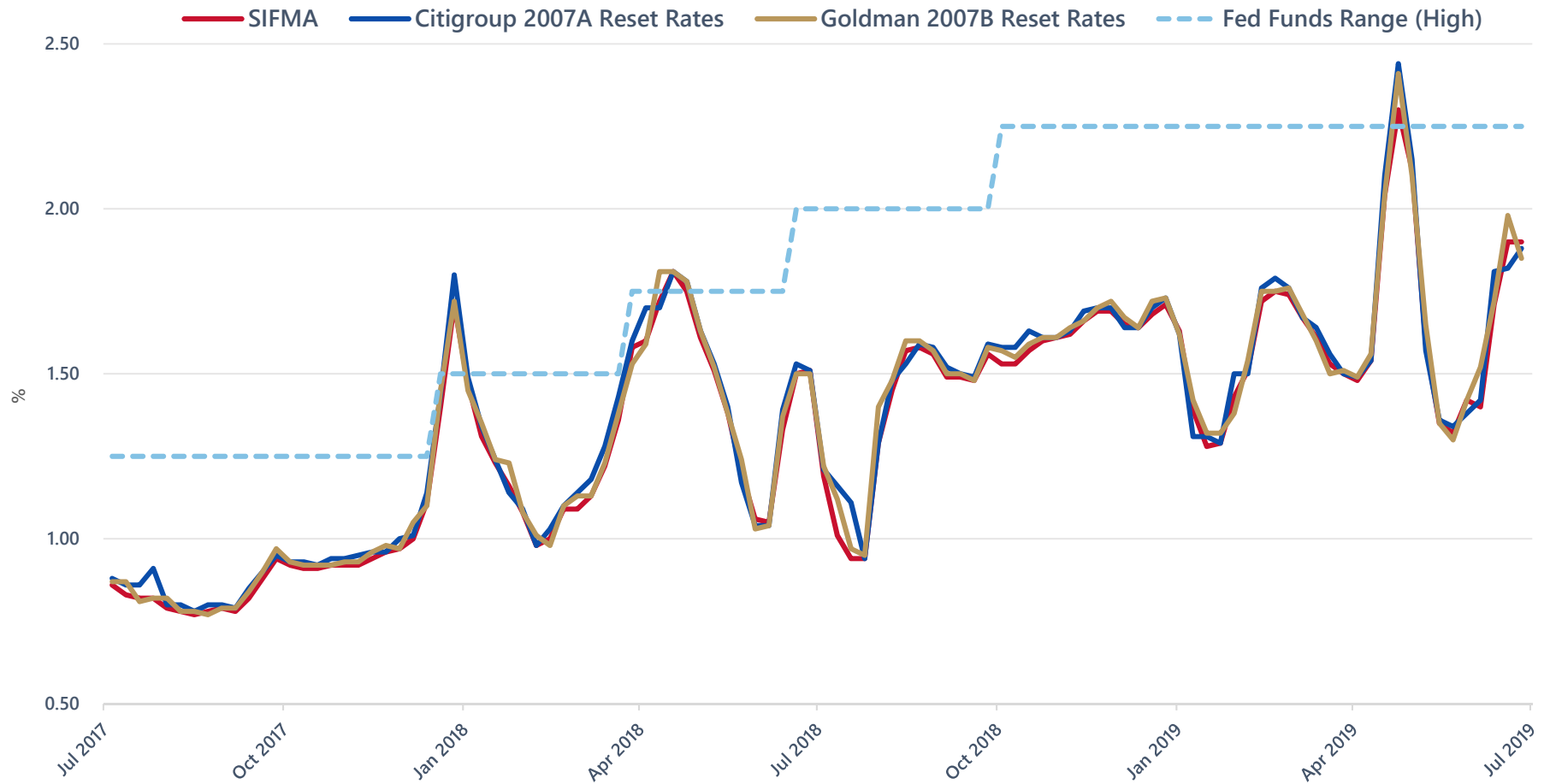
The average interest rate for the State's outstanding Everglades variable rate bonds was 1.15% during FY 2017-18 and 1.58% in FY 2018-19.

<u>Date</u>	<u>Interest Rate</u>	<u>Date</u>	<u>Interest Rate</u>
7/5/2017	0.88%	7/4/2018	1.22%
7/12/2017	0.87%	7/11/2018	1.14%
7/19/2017	0.84%	7/18/2018	1.04%
7/26/2017	0.87%	7/25/2018	0.95%
8/2/2017	0.81%	8/1/2018	1.35%
8/9/2017	0.79%	8/8/2018	1.48%
8/16/2017	0.78%	8/15/2018	1.57%
8/23/2017	0.79%	8/22/2018	1.60%
8/30/2017	0.80%	8/29/2018	1.58%
9/6/2017	0.79%	9/5/2018	1.51%
9/13/2017	0.85%	9/12/2018	1.50%
9/20/2017	0.90%	9/19/2018	1.49%
9/27/2017	0.96%	9/26/2018	1.59%
10/4/2017	0.93%	10/3/2018	1.58%
10/11/2017	0.93%	10/10/2018	1.57%
10/18/2017	0.92%	10/17/2018	1.61%
10/25/2017	0.93%	10/24/2018	1.61%
11/1/2017	0.94%	10/31/2018	1.61%
11/8/2017	0.94%	11/7/2018	1.64%
11/15/2017	0.96%	11/14/2018	1.68%
11/22/2017	0.97%	11/21/2018	1.70%
11/29/2017	0.99%	11/28/2018	1.71%
12/6/2017	1.03%	12/5/2018	1.66%
12/13/2017	1.12%	12/12/2018	1.64%
12/20/2017	1.45%	12/19/2018	1.71%
12/27/2017	1.76%	12/26/2018	1.73%
1/3/2018	1.47%	1/2/2019	1.62%
1/10/2018	1.35%	1/9/2019	1.37%
1/17/2018	1.24%	1/16/2019	1.32%
1/24/2018	1.19%	1/23/2019	1.31%
1/31/2018	1.09%	1/30/2019	1.44%
2/7/2018	1.00%	2/6/2019	1.52%
2/14/2018	1.01%	2/13/2019	1.76%
2/21/2018	1.10%	2/20/2019	1.77%
2/28/2018	1.14%	2/27/2019	1.76%
3/7/2018	1.16%	3/6/2019	1.68%
3/14/2018	1.26%	3/13/2019	1.62%
3/21/2018	1.41%	3/20/2019	1.53%
3/28/2018	1.57%	3/27/2019	1.51%
4/4/2018	1.65%	4/3/2019	1.49%
4/11/2018	1.76%	4/10/2019	1.55%
4/18/2018	1.81%	4/17/2019	2.07%
4/25/2018	1.78%	4/24/2019	2.43%
5/2/2018	1.63%	5/1/2019	2.13%
5/9/2018	1.53%	5/8/2019	1.61%
5/16/2018	1.39%	5/15/2019	1.36%
5/23/2018	1.21%	5/22/2019	1.32%
5/30/2018	1.04%	5/29/2019	1.40%
6/6/2018	1.04%	6/5/2019	1.47%
6/13/2018	1.38%	6/12/2019	1.77%
6/20/2018	1.52%	6/19/2019	1.90%
6/27/2018	1.51%	6/26/2019	1.87%
FY 2018 Average	1.15%	FY 2019 Average	1.58%

Short-Term Interest Rate

Everglades Series 2007A&B Variable Rate Bonds

Interest Rates in FY 2017-18 & 2018-19



PECO BOND SALES AND INTEREST RATES

(BOLD font indicates forecasted values)

	Bond Buyer 20-Bond Index		Series 2019 FY19-20	Series 2020 FY20-21	Series 2021 FY21-22	Series 2022 FY22-23	Series 2023 FY23-24	Series 2024 FY24-25	Series 2025 FY25-26
	NOV 2018	FEB 2019							
2019 Q3	4.56%	3.77%	4.25% Jul 2019						
2019 Q4	4.60%	3.91%	4.75% Feb 2019						
2020 Q1	4.63%	4.01%							
2020 Q2	4.65%	4.09%							
2020 Q3	4.66%	4.18%		4.75% Jul 2019					
2020 Q4	4.66%	4.27%		5.00% Feb 2019					
2021 Q1	4.66%	4.34%							
2021 Q2	4.66%	4.41%							
2021 Q3	4.66%	4.48%			5.00% Jul 2019				
2021 Q4	4.64%	4.55%			5.00% Feb 2019				
2022 Q1	4.64%	4.59%							
2022 Q2	4.64%	4.64%							
2022 Q3	4.63%	4.68%				5.00% Jul 2019			
2022 Q4	4.63%	4.72%				5.00% Feb 2019			
2023 Q1	4.62%	4.74%							
2023 Q2	4.62%	4.76%							
2023 Q3	4.61%	4.77%					5.25% Jul 2019		
2023 Q4	4.61%	4.78%					5.25% Feb 2019		
2024 Q1	4.61%	4.78%							
2024 Q2	4.61%	4.78%							
2024 Q3	4.61%	4.79%						5.25% Jul 2019	
2024 Q4	4.61%	4.79%						5.25% Feb 2019	
2025 Q1	4.61%	4.79%							
2025 Q2	4.61%	4.79%							
2025 Q3	4.61%	4.80%							5.25% Jul 2019
2025 Q4	4.61%	4.80%							5.25% Feb 2019
2026 Q1	4.61%	4.80%							
2026 Q2	4.61%	4.81%							

7/17/2019

4.25%

4.75%

5.00%

5.00%

5.25%

5.25%

5.25%