## MINUTES OF MEETING

## OF THE BOARD OF DIRECTORS

## RETIREMENT SYSTEM OF THE TENNESSEE VALLEY AUTHORITY

December 4, 2017

The regular quarterly meeting of the Board of Directors (Board) of the TVA Retirement System (System) was held on Monday, December 8, 2017, at 2:13 p.m., EST, at the TVA Chattanooga Office Complex, LP 1S 100, Chattanooga, Tennessee.

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The following directors were present: Allen E. Stokes, Chair; Brian M. Child; Samuel J. DeLay; James W. Hovious; Leonard J. Muzyn; Wilson Taylor III; and Tammy W. Wilson (via telephone). Also present were Patrick D. Brackett, Executive Secretary; William B. Jenkins, Jr., Assistant Secretary; Sally R. Weber, Manager, Retirement Operations; Veenita Bisaria, Manager, Investment & Risk Management; Chris A. Stinnett, Sr. Analyst, Investment & Risk Management; and W. Colby Carter, Senior Counsel.

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471-1 Each director was notified in a memorandum dated November 22, 2017, of the regular quarterly meeting to be held on December 4, 2017. A copy of the notice from the Executive Secretary is filed as Exhibit 471-1.

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471-2 (A-6473). The Chair's report included the following:

• The Chair welcomed Sam DeLay as a new Director on the Board. Mr. DeLay, who is a Senior Program Manager in TVA's Energy Use Technology group, was elected by System members for a three-year term beginning November 1, 2017.

• The Chair designated the following members for the Board's standing committees for calendar year 2018:

Audit Committee	Retirement Committee
Tammy W. Wilson, Chair Samuel J. DeLay Allen E. Stokes	Wilson Taylor III, Chair Leonard J. Muzyn Tammy W. Wilson
Investment Committee	Election Committee
Leonard J. Muzyn, Chair Brian M. Child Samuel J. DeLay James W. Hovious Allen E. Stokes Wilson Taylor III Tammy W. Wilson	Samuel J. DeLay, Chair James W. Hovious Wilson Taylor III

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471-3 (A-6474). The Executive Secretary's report included the following:

- The Executive Secretary provided to the Board the proposed quarterly meeting schedule for calendar year 2018.
- The Executive Secretary provided to the Board the System staff's work plan for fiscal year 2018. A copy of the fiscal year 2018 work plan is filed as Exhibit 471-3.

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471-4 (A-6475). The legal update included the following:

- Senior Counsel informed the Board that, at the end of October, the System submitted a private letter ruling request to the IRS regarding the proposed amendments to provide election options for System members with cash balance accounts.
- Senior Counsel informed the Board that the Sixth Circuit Court of Appeals has scheduled oral arguments on January 31, 2018, in Cincinnati, on the remaining issues in the lawsuit against TVA and the System. Senior Counsel also informed the Board that Chris Christie, Partner with the law firm of Bradley, who has been serving as legal counsel for the System in the lawsuit, will be leaving the firm at the end of the year to run for public office, and that Edmund Sauer, another Partner with Bradley in its Nashville office, who has been involved in the System's appellate briefs before the

Sixth Circuit, is prepared to handle the oral arguments on January 31 on behalf of the System.

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471-5 (A-6476). As required by the System's bylaws, an election was held for the offices

of Chair and Vice-Chair of the Board.

- Mr. Child and Mr. Muzyn were nominated as candidates for the office of Chair. Pursuant to the System's bylaws, the Directors voted by ballot, and Mr. Child was elected as Chair for a three-year term ending at the first meeting of the Board after October 31, 2020.
- Mr. DeLay and Mr. Taylor were nominated as candidates for the office of Vice-Chair. Pursuant to the System's bylaws, the Directors voted by ballot, and Mr. Taylor was elected as Vice-Chair for a three-year term ending at the first meeting of the Board after October 31, 2020.

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471-6 (A-6477). The Board approved the minutes of Meeting No. 469 held September 7, 2017.

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471-7 (A-6478). The Board discussed the minutes of Special-Called Meeting No. 470

held October 30, 2017. The Board tabled the approval of the minutes pending the submission of additional Director statements on meeting items in the minutes.

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471-8 (A-6479). The Board accepted the Treasurer's Report for the quarter ended

September 30, 2017. A copy of the Treasurer's Report is filed as Exhibit 471-8.

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471-9 (A-6480). The Board accepted the Investment Performance Report prepared by

Wilshire Associates Incorporated (Wilshire) for the quarter ended September 30, 2017. A copy

of the Investment Performance Report is filed as Exhibit 471-9.

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471-10 (A-6481). The Board accepted the report of retirements approved for the quarter ended September 30, 2017. A copy of the report is filed as Exhibit 471-10.

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471-11 (A-6482). The Board accepted the quarterly review for the TVA Savings and

Deferral Retirement Plan (401(k) Plan) prepared by Fidelity Investment Institutional Services

Company (Fidelity) for the quarter ended September 30, 2017. A copy of the 401(k) Plan

quarterly review is filed as Exhibit 471-11.

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471-12 (A-6483). The Investment Committee report consisted of the items reported

below at A-6484 and A-6485 and of the following items:

- The Board was provided and took note of the quarterly report on manager compliance with investment guidelines. A copy of the report, dated September 30, 2017, is filed as Exhibit 471-12(a).
- The Board was provided and took note of information regarding investment manager asset transfers during the third quarter of 2017. A copy of this information is filed as Exhibit 471-12(b).
- The Board was provided and took note of information on due diligence meetings and conference calls between System staff and investment managers and service providers for the period September 2017 through November 2017. A copy of the information is filed as Exhibit 471-12(c).
- The Board was provided an update on the funded status of the System through September 30, 2017. A copy of the report is filed as Exhibit 471-12(d).
- The Board reviewed and discussed with Aon Hewitt (Aon) the quarterly 401(k) Plan Discussion Guide covering the following: market information, asset allocation, asset flows by manager, investment fund monitoring, investment fund performance, Target Retirement Portfolio asset allocation and glide path, and manager and fee updates. A copy of the Aon 401(k) Plan Discussion Guide is filed as Exhibit 471-12(e).
- The Board was provided and discussed with Wilshire and System investment staff information on several investment managers and their portfolios and strategies. A

copy of this Investment Manager Product Discussion List is filed as Exhibit 471-12(f).

- The Board was provided a report from Wilshire with portfolio overviews, strategies, and construction for the System's private real assets and private credit allocations. A copy of the report is filed as Exhibit 471-12(g).
- The Board was provided a report from Wilshire analyzing the fees of the System's public markets investment managers relative to a peer universe. A copy of Wilshire's public manager fee analysis is filed as Exhibit 471-12(h).

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471-13 (A-6484). On November 14, 2017, the Investment Committee met with Wilshire

and the System investment staff to review Wilshire's recommended changes to the System's

asset allocation policy in order to improve the risk/return profile of the System's investment

portfolio. Following discussion, and upon the recommendation of Wilshire and the Investment

Committee, the Board approved a new asset allocation policy for the System's investments as

follows:

- 35% Public Equity (composed of 15% U.S. equity, 15% non-U.S. equity, and 5% low-volatility global equity)
- 7.5% Private Equity
- 17.5% Safety-Oriented Fixed Income (composed of 10% core fixed income, 5% long credit, and 2.5% cash)
- 15% Opportunistic Fixed Income (composed of 5% high yield fixed income, 5% emerging market debt, and 5% private credit)
- 15% Public Real Assets (composed of 7.5% U.S. treasury inflation protection securities, 3% commodities, 2.25% master limited partnerships, and 2.25% global real estate investment trusts)
- 10% Private Real Assets

A copy of Wilshire's asset allocation analysis, including the recommended new policy,

dated November 2017, is filed as Exhibit 471-13.

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471-14 (A-6485). Following discussion, and upon the recommendation of the Investment Committee, the Board approved amendments to the System's Service Provider Evaluation and Interaction Policy. A copy of the amended Policy, which will be posted on the System's website, is filed as Exhibit 471-14.

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471-15 (A-6486). The Retirement Committee report consisted of items reported below at

A-6487, A-6488, and A-6489, and of the following item:

• The Executive Secretary provided to the Board an update on the implementation timeline for the defined benefit plan disbursement services conversion to Bank of New York Mellon, the System's master trustee and custodian, which will be effective January 31, 2018. A copy of the updated implementation timeline, along with copies of letters that will be sent the System's retirees and beneficiaries by BNY Mellon regarding the conversion, is filed as Exhibit 471-15.

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471-16 (A-6487). The Board approved the calculation of a 1.84% cost-of-living adjustment (COLA) in the monthly pension and supplemental benefits payable to eligible retirees and beneficiaries in accordance with the System Rules. The COLAs are effective with the January 2018 payments as provided for in sections 6I, 7L and 18C3 of the System Rules. A copy of the COLA calculation is filed as Exhibit 471-16.

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471-17 (A-6488). The Board approved the calculation of the following interest crediting rates for calendar year 2018: (i) a 6% annual interest rate credit to the cash balance accounts of participants hired before January 1, 1996, pursuant to Section 7C3(a) of the System Rules; (ii) a 4.75% annual interest rate credit to the cash balance accounts of participants hired on or after January 1, 1996, pursuant to section 7C3(b)(ii) of the System Rules; and (iii) a 4.75% annual interest rate credit for fixed fund accounts pursuant to Section 17 of the Actuarial Assumptions

in the Appendix to the System Rules. A copy of these cash balance and fixed fund annual interest rate calculations is filed as Exhibit 471-17.

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471-18 (A-6489). Upon the recommendation of the Retirement Committee, the Board approved the performance by Mercer of an actuarial analysis of the System's experience for the 5-year period of October 1, 2012, to September 30, 2017, as required by the System Rules, and authorized the Executive Secretary to take any actions necessary with Mercer to implement this approval. A copy of Mercer's statement of work for the System's experience study is filed as Exhibit 471-18.

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471-19 (A-6490). After discussion, the Election Committee notified the Board that the current term of the 7<sup>th</sup> Director will end October 30, 2018, and that the Board will need to evaluate and select a new 7<sup>th</sup> Director during 2018. As a part of this, the Election Committee indicated its desire to begin soliciting potential candidates at the beginning of 2018 and provided the Board a copy of the Director Election/Selection Policy, highlighting the Attachment to the Policy that provides desired characteristics for the Director position.

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471-20 (A-6491). The Audit Committee report consisted of the items reported below at A-6492 and A-6493, and of the following item:

• The Board was provided and took note of a summary of charges on the System's credit card for the previous quarter.

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471-21 (A-6492). Prior to the meeting, the Audit Committee met with Crowe Horwath, the System's auditor, via teleconference to review and discuss the results of the Service Organization Control (SOC1) Report for the System for the period August 1, 2016, to July 31, 2017. After discussion, and upon the recommendation of the Audit Committee, the Board accepted the SOC1 Report for the System for the period August 1, 2016, to July 31, 2017, prepared by Crowe Horwath. A copy of the SOC1 Report is filed as Exhibit 471-21(a).

Upon the recommendation of the Audit Committee, the Board voted to approve, and authorized the Executive Secretary to execute, an engagement letter with Crowe Horwath to perform the System's SOC1 audit for the period August 1, 2017, to July 31, 2018. A copy of the engagement letter with Crowe Horwath is filed as Exhibit 471-21(b).

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471-22 (A-6493). The Board discussed the March 2017 report by the U.S. Government

Accountability Office (GAO) on TVA's debt reduction plan and unfunded pension liabilities. A

copy of the GAO report is filed as Exhibit 471-22. After this discussion, the Audit Committee by

a 2 to 1 vote, made a motion to approve the following resolution:

BE IT RESOLVED, that subsection 9B3 of the Rules and Regulations of TVA Retirement System (TVARS Rules) is hereby amended to change the 30-year open amortization period to a 20-year closed amortization period for purposes of the "accrued liability" in the calculation of the annual required contribution under section 9B of the TVARS Rules; and

RESOLVED FURTHER, that the Executive Secretary and Legal Counsel are directed to draft an amendment to subsection 9B3 of the TVARS Rules in accordance to this approval and to send the amendment to TVA for review as required pursuant to the TVARS Rules.

After further discussion, the motion to amend Section 9B3 failed by a roll call vote of 4

to 3. Directors DeLay, Hovious and Muzyn voted for the motion, and Directors Child, Stokes,

Taylor and Wilson voted against the motion.

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The meeting was adjourned at 2:45 p.m., EST.

Mith B, XH

Executive Secretary

Brion M. Child

Chair