

Meeting No. 480

MINUTES OF MEETING
THE BOARD OF DIRECTORS OF
THE TENNESSEE VALLEY AUTHORITY RETIREMENT SYSTEM

March 7, 2019

The regular quarterly meeting of the Board of Directors (Board) of the TVA Retirement System (System) was held on Thursday, March 7, 2019, at 12:14 p.m., EST, at the TVA Chattanooga Office Complex, MR 1N 403, Chattanooga, Tennessee.

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The following directors were present: Brian M. Child, Chair; Tammy W. Wilson, Vice-Chair; Michael L. Belcher; Samuel J. DeLay (via telephone); Christopher L. Hinton; James W. Hovious; and Allen E. Stokes (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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480-1 Each director was notified in a memorandum dated March 1, 2019, of the regular quarterly meeting to be held on March 7, 2019. A copy of the notice from the Executive Secretary is filed as Exhibit 480-1.

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480-2 (A-6604). The Chair reported that Aon, the Board's governance consultant, has shared with all of the Board members a summary of the Board's 2018 self-evaluation. The Board

has discussed with each other the results of the self-evaluation and will look to incorporate a number of those findings during this year.

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480-3 (A-6605). The Executive Secretary reported on the progress of the System's audit, which should finish in early April, and that a phone call or in-person meeting will be scheduled with Crowe, the System's external auditor, to review the audit and results and annual report with the Board.

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480-4 (A-6606). There were no items to report from the Senior Counsel.

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480-5 (A-6607). The Board previously discussed with Mercer Human Resources Consulting, the System's actuary (Mercer), the actuarial analysis of the System's experience for the 5-year period of October 1, 2012, to September 30, 2017 (see Minute Entry 479-18). Based on this experience study, the Board by notational vote on December 17, 2018, approved factor adjustments for benefits calculations tied to the mortality adjustment changes and approved the following amendments to Sections 1 and 2 of the Actuarial Assumptions in the Appendix to the TVARS Rules and Regulations consistent with the mortality assumption changes:

APPENDIX TO THE RULES AND REGULATIONS OF THE TVA RETIREMENT SYSTEM

Actuarial Assumptions

Certain benefit payments are calculated on the basis of actuarial assumptions, mortality tables, and interest rates. The following have been adopted by the board. The board may change these assumptions, tables, and rates from time to time.

1. a. The mortality tables for service retirements are based on the 1971 Group Annuity Mortality Table rated back one year (hereinafter referred to as service mortality tables) and the mortality tables for disability retirements are based on the Society of Actuaries

Disability Exposure Table Ultimate 1985 rated back six years (hereinafter referred to as disability mortality tables).

- b. Effective for service retirements on or after January 1, 2003, the mortality table used shall be the 1983 Group Annuity Mortality Table (references to service mortality tables for service retirements on or after that date shall be deemed as references to this table). Effective for disability retirements on or after January 1, 2003, the mortality table used shall be the 1983 Group Annuity Mortality Table, set forward eight years (references to disability mortality tables for disability retirements on or after that date shall be deemed as references to this table).
- c. Effective for service retirements on or after April 1, 2009, the mortality table used shall be the Combined Healthy RP-2000 Mortality Table without a collar adjustment (references to service mortality tables for service retirements on or after that date shall be deemed as references to this table). Effective for disability retirements on or after April 1, 2009, the mortality table used shall be the Combined Healthy RP-2000 Mortality Table without a collar adjustment, with a set forward that is ten years before age 70, grades down to six years from age 70 to age 73, is six years from age 73 to age 79, grades down to zero years from age 80 to age 85, and is zero above age 85 (references to disability mortality tables for disability retirements on or after that date shall be deemed as references to this table).
- d. Effective for service retirements on or after February 1, 2014, the mortality table used shall be the Combined Healthy RP-2000 Mortality Table without a collar adjustment, projected with Scale AA to 2022 (references to service mortality tables for service retirements on or after that date shall be deemed as references to this table). Effective for disability retirements on or after February 1, 2014, the mortality table used shall be the Combined Healthy RP-2000 Mortality Table without a collar adjustment, projected with Scale AA to 2022, with a set forward that is 20 years until age 55, decreasing from 20 years to 10 years from age 55 to 65, remaining 10 years from age 65 to age 75, decreasing from 10 years to zero between ages 75 and 85 and staying zero after age 85 (references to disability mortality tables for disability retirements on or after that date shall be deemed as references to this table).
- e. Effective for service retirements on or after April 1, 2019, the mortality table used shall be the base healthy mortality table RP-2014 from the Society of Actuaries' 2014 mortality study multiplied by a load factor of 105% for males and 110% for females, without a collar adjustment, adjusted for mortality improvement based on the rates contained in Mercer's mortality improvement scale MSS-2018 to 2028 (after the MP-2014 improvement scale is backed out to the 2006 base year). References to service mortality tables for service retirements on or after that date shall be deemed as references to this table. Effective for disability retirements on or after April 1, 2019, the mortality table used shall be the base disabled mortality table RP-2014 from the Society

of Actuaries' 2014 mortality study multiplied by a load factor of 120% for males and 95% for females, without a collar adjustment, adjusted for mortality improvement based on the rates contained in Mercer's mortality improvement scale MSS-2018 to 2028 (after the MP-2014 improvement scale is backed out to the 2006 base year). References to disability mortality tables for disability retirements on or after that date shall be deemed as references to this table.

- ef. Such service mortality tables and disability mortality tables, as heretofore defined, are used as the bases for determining various benefit computation factors.
- fg. Effective September 30, ~~2018~~²⁰¹⁵, for purposes of the System's actuarial valuations as set forth under the Rules and Regulations, the following service mortality and disability mortality tables will be used. For service mortality, the mortality table shall be the base healthy mortality table RP-2014 from the Society of Actuaries' 2014 mortality study multiplied by a load factor of 105% for ~~both~~ males and 110% for females, with mortality improvement projection after ~~2007~~²⁰⁰⁶ removed and replaced with Mercer ~~Human Resource Consulting's~~ mortality improvement scale MSS-~~2007~~²⁰¹⁸ (as updated annually, and reviewed and approved by the Board) which reflects generational mortality improvement based on the Social Security Administration's projected mortality experience. For disability mortality, the mortality table shall be the base disabled mortality table RP-2014 from the Society of Actuaries' 2014 mortality study multiplied by a load factor of 120% for males and 95% for females, with mortality improvement projection after ~~2007~~²⁰⁰⁶ removed and replaced with Mercer's mortality improvement scale MSS-~~2007~~²⁰¹⁸ (as updated annually, and reviewed and approved by the Board) which reflects generational mortality improvement based on the Social Security Administration's projected mortality experience.
- gh. The above notwithstanding, for the purposes of applying the limits on benefits set forth in section 415(b) of the Internal Revenue Code, the mortality table used shall be the table prescribed by the Secretary of the Treasury in Revenue Ruling 95-6, as it may be amended or superseded. Provided, further, that effective as to distributions with annuity starting dates on or after December 31, 2002, notwithstanding any other plan provisions to the contrary, the applicable mortality table used for the purposes of adjusting any benefit or limitation under section 415(b)(2)(B), (C), or (D) of the Internal Revenue Code as set forth in section 17 of the Rules and Regulations is the table prescribed in Rev. Rule 2001-62. Provided, further, that effective as to distributions with annuity starting dates in plan years that begin on or after January 1, 2008, notwithstanding any other plan provisions to the contrary, the mortality table used for the purposes of adjusting any benefit or limitation under section 415(b)(2)(B), (C), or (D) of the Internal Revenue Code as set forth in May 2005 RETIREMENT Rules Page 91 section 17 of the Rules and Regulations is the applicable mortality table under section 417(e) of the Internal Revenue Code as prescribed and published by Internal Revenue Service guidance or regulations applicable to section 417(e).

2. The service and disability mortality tables are modified to produce benefit computation factors which same factors apply to both male and female members and beneficiaries and derivation of such factors reflect past and anticipated experience and are weighted based on various selections by male and female members. Effective for retirements on or after January 1, 2003, the tables referred to in section 1 above shall be blended with 80 percent of the male mortality and 20 percent of the female mortality except that (a) for option 1 retirements (life annuity with full cash refund) the tables shall be blended with 65 percent of the male mortality and 35 percent of the female mortality, however, effective for retirements on or after February 1, 2014, for option 1 retirements (life annuity with full cash refund) the tables referred to in section 1 above shall be blended with 55 percent of the male mortality and 45 percent of the female mortality and (b) for option 2 retirements (100 percent joint and survivor), option 3 retirements (50 percent joint and survivor), and option 4 retirements (miscellaneous options), the tables shall be blended with 90 percent of the male mortality and 10 percent of the female mortality. Effective for retirements on or after April 1, 2019, the tables referred to in section 1 above shall be blended with 80 percent of the male mortality and 20 percent of the female mortality.

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480-6. As a part of the Consent Agenda, the Board approved the minutes for the meeting reported below in A-6608, and accepted the reports as of December 31, 2018, listed below in A-6609, A-6610, A-6611, and A-6612.

- A-6608 Meeting No. 479 held December 3, 2018
- A-6609 Treasurer's Report (filed as Exhibit 480-6(a))
- A-6610 Investment Performance Report prepared by Wilshire Associates Incorporated (Wilshire) (filed as Exhibit 480-6(b))
- A-6611 Report of retirements approved (filed as Exhibit 480-6(c))
- A-6612 Quarterly review for the TVA Savings and Deferral Retirement Plan (401(k) Plan) prepared by Fidelity Investment Institutional Services Company (Fidelity) (filed as Exhibit 480-6(d))

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480-7 (A-6613). The Investment Committee report consisted of the items reported below at A-6614 and A-6615, and of the following items:

- The Board was provided and took note of information regarding investment manager asset transfers during the fourth quarter of 2018. A copy of this information is filed as Exhibit 480-7(a).
- 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 November 2018 through February 2019. A copy of the information is filed as Exhibit 480-7(b).
- The Board was provided an update on the funded status of the System through December 31, 2018. A copy of the report is filed as Exhibit 480-7(c).
- The Board was provided the quarterly 401(k) Plan Discussion Guide from Aon covering the following: asset allocation and quarterly flows, performance of the investment funds in the 401(k) Plan's lineup, manager and fee updates, and a target-date fund review, including information on customized target-date fund approaches. On February 28, 2019, the Investment Committee met with Aon and the System staff to review the quarterly 401(k) Plan Discussion Guide. A copy of the Guide, including target-date fund review, is filed as Exhibit 480-7(d).
- On February 28, 2019, the Investment Committee 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 480-7(e).
- On February 28, 2019, the Investment Committee was provided and took note of net internal rate of return (net IRR) performance information as of September 30, 2018, for all of the funds in the System's private markets portfolio (private equity, private real estate, and private real assets) compared to both vintage year IRRs for each fund and public market equivalent annualized performance. A copy of the report from Wilshire is filed as Exhibit 480-7(f).
- On February 28, 2019, Wilshire met with the Investment Committee and System staff to discuss the System's asset allocation policy and a timeline and process for evaluating the asset allocation. A copy of the asset allocation discussion information from Wilshire is filed as Exhibit 480-8(g).
- The System staff provided information to the Investment Committee and the Board on the change in the recordkeeper from BlackRock to Fidelity for the 401(k) Plan's Target Retirement Portfolios. This change, which will take effect on October 1, 2019, will result in lower fees for the Target Retirement Portfolios, and there will be no

change in the funds or investments of the Portfolios. Information provided to the Board on this change is filed as Exhibit 480-8(h).

- Wilshire and the System investment staff reviewed current fee agreements among the System's public markets investment managers relative to a peer universe and provided this analysis to the Investment Committee on February 28, 2019. A copy of this fee analysis is filed as Exhibit 480-8(i).

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480-9 (A-6614). On February 28, 2019, the Investment Committee met and discussed with the Wilshire Private Markets group and the System investment staff opportunities for 2019 for the new fund-of-one structure, the Summit Hill Real Assets Fund. After discussion, upon the recommendation of the Investment Committee, the Board approved a commitment of \$140 million for the 2019 investment in the Summit Hill Real Assets Fund and authorized the Executive Secretary to take any actions necessary to implement this action. A copy of the private real assets portfolio update and implementation from Wilshire Private Markets to the Board, dated February 2019, is filed as Exhibit 480-9.

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480-10 (A-6615). On February 28, 2019, the Investment Committee met and discussed with the Wilshire Private Markets group and the System investment staff opportunities for 2019 for the new fund-of-one structure, the Summit Hill Credit Fund. After discussion, upon the recommendation of the Investment Committee, the Board approved a commitment of \$160 million for the 2019 investment in the Summit Hill Credit Fund and authorized the Executive Secretary to take any actions necessary to implement this action. A copy of the private credit portfolio update and implementation from Wilshire Private Markets to the Board, dated February 2019, is filed as Exhibit 480-10.

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480-11 (A-6616). The Retirement Committee report consisted of items reported below at A-6617, A-6618, and A-6619, and of the following item:

- At the request of the Retirement Committee, the Board was provided information related to System funding from Mercer and the GAO which had been previously provided to the Board. Prior to the meeting, the Board discussed this information with Mercer and the System staff to better understand the System's current funding rules and funded status as well as alternate approaches.

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480-12 (A-6617). Prior to the meeting, the Board reviewed with Mercer the Report of Actuary on the Seventy-Ninth Actuarial Valuation of the TVA Retirement System prepared as of September 30, 2018 (Actuarial Valuation Report). Upon the recommendation of the Retirement Committee, the Board voted to accept the Actuarial Valuation Report performed by Mercer. As set forth in the report, Mercer calculated the minimum required contribution to the System for fiscal year 2020 to be \$300 million per section 9B4 of the System Rules and Regulations. A copy of Mercer's Actuarial Valuation Report is filed as Exhibit 480-12.

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480-13 (A-6618). Prior to the meeting, the Board reviewed with Mercer the actuarial valuation of the Variable Annuity Fund as of September 30, 2018 (Variable Annuity Valuation Report). Upon the recommendation of the Retirement Committee, the Board accepted the Variable Annuity Valuation Report performed by Mercer, and its recommendation that the outstanding variable units should be decreased by 46,074. The decrease in number of units will result in an increase in the unit value and will be applied beginning with the July 2019 payroll. A copy of the Variable Annuity Valuation Report is filed as Exhibit 480-13.

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480-14 (A-6619). Senior Counsel discussed with the Board a plan document compliance service offered by the System's outside counsel, Groom Law Group. This service offers the System a way to ensure and document IRS compliance of the retirement plan documents now that the IRS is no longer issuing periodic determination letters. After discussion, the Board approved the use of Groom Law Group for its plan document compliance service to begin this year. Information on Groom's plan document compliance service is filed as Exhibit 480-14.

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480-15 (A-6620). The Election Committee report consisted of the item reported below at A-6621.

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480-16 (A-6621). Prior to the meeting, the Election Committee discussed with System staff the upcoming election schedule and amended the draft schedule to move back the "announcement of candidates" date 30 days to July 19 and move all other dates before that back 30 days. Upon the recommendation of the Election Committee, the Board approved the 2019 TVARS Election Schedule, as amended, by a vote of 6 to 0, with Director Hovious recusing himself. A copy of the Election Schedule, as amended, is filed as Exhibit 480-16.

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480-17 (A-6622). The Audit Committee report consisted of the item reported below at A-6623, and of the following items:

- Prior to the meeting, the System staff updated the Board on the status of the System's 2018 fiscal year-end audit being performed by Crowe LLP.
- Prior to the meeting, the System staff notified the Board that the System will be conducting an RFP for audit services, including both the full-scope financial statement audit and the SOC1 Type 2 examination of System controls, and discussed with the Board the accounting firms to which the System is planning to issue the RFP.

A copy of the System staff's auditor RFP summary provided to the Board, and a copy of the draft RFP, is filed as Exhibit 480-17(a).

- The Executive Secretary informed the Board that a renewal application has been filed with Marsh for continuing fiduciary liability insurance coverage for the Board and System staff. The current 1-year policy expires on May 20.
- The Board was provided information on the upcoming annual Wilshire consulting client conference as well as information from Aon, the Board's governance consultant, on other educational seminars and conferences available to trustees and fiduciaries of public retirement plans. In addition, in accordance with the Board's travel policy, the Board accepted the payment of expenses from Wilshire for any Board members and System staff who attend the Wilshire consulting client conference and any events integral to the conference. A copy of the information regarding the Wilshire conference and other education seminars and conferences is filed as Exhibit 480-17(b).
- The Executive Secretary and Senior Counsel presented to the Board a draft governance policy review schedule for the Board's upcoming meetings over the next two years. As a part of reviewing the schedule, the Board requested that the policies that are to be reviewed for each meeting be sent out to Directors at least two weeks prior to the meeting in order to allow time for review. A copy of the governance policy review schedule is filed as Exhibit 480-17(c).
- At the previous meeting, the Board requested the System staff to put together for the Board's discussion ideas for the Board to be more transparent in conducting business (see Minute Entry 479-22). As requested, the Executive Secretary and Senior Counsel presented to the Board a list of ideas for improving transparency and stakeholder communications, which the Board discussed with System staff. A copy of this list is filed as Exhibit 480-17(d).

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480-18 (A-6623). Prior to the meeting, the Audit Committee discussed with the Board the governance consulting services being provided by Jeanna Cullins, Partner, and Julie Becker, Associate Partner, with Aon Hewitt Investment Consulting (AHIC). Upon the recommendation of the Audit Committee, the Board approved a new engagement letter with AHIC to continue providing governance consulting services for the Board, including education, evaluations, and policy review and development. A copy of the engagement letter with AHIC is filed as Exhibit 480-18.

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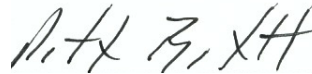
480-19 (A-6624). The Executive Secretary Search Committee reported that, in working with the full Board, it identified potential qualified candidates for the position of Executive Secretary, and that the full Board has conducted in-person interviews with these candidates. The Committee will work to continue discussions with the full Board around making a final selection over the next several weeks with the goal to have the selected individual work with the current Executive Secretary for a few months prior to his retirement.

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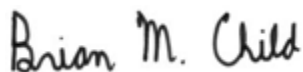
480-20 (A-6625). The 7th Director Search Committee updated the Board on the status of the 7th Director selection process, including completion of interviews, additional questions from Directors for the candidates, and work on finding dates for the full Board to discuss the candidates.

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The meeting was adjourned at 12:36 p.m., EST.



Executive Secretary



Chair