# Tennessee Valley Authority Retirement System

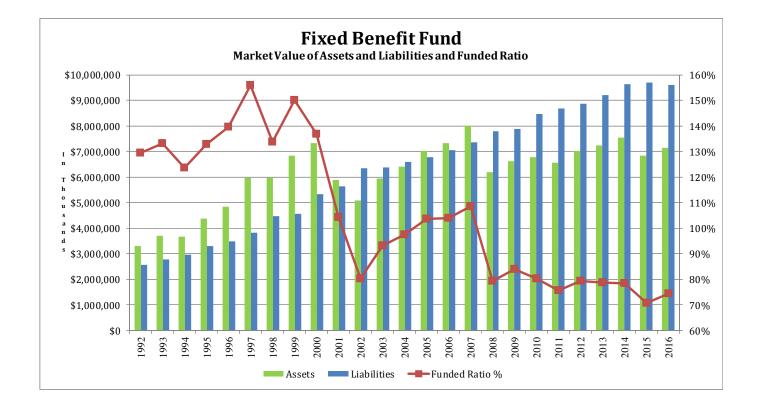
2016 Annual Report

# Contents

Financial Highlights and Statistics	3
Letter from the Chair	4
Board of Directors	5
Professional Advisers and Investment Managers	7
Plan Summary	8
Certification of Financial Statements	13
Independent Auditor's Report – TVA Retirement System	14
TVA Retirement System – Financial Statements	15
Independent Auditor's Report – TVA Savings and Deferral Retirement Plan (401(k) Plan)	38
TVA Savings and Deferral Retirement Plan (401(k) Plan) – Financial Statements	39
Contact Information	49

# **Financial Highlights and Statistics**

(Dollars in thousands)		2016	2015	Change	% Change
Net Assets Available for Benefits					
TVA Retirement System (Fixed Benefit Fund and Variable Fund)	\$ 7	7,288,233	\$ 6,964,583	\$ 323,650	4.6%
TVA Savings & Deferral Retirement Plan [401(k) Plan]	2	2,078,180	1,971,977	106,203	5.4%
Total	\$ 9	9,366,413	\$ 8,936,560	\$ 429,853	4.8%
Net Assets Available for Benefits (Fixed Benefit Fund)	\$ 7	7,155,956	\$ 6,833,382	\$ 322,574	4.7%
Actuarial Present Value of Accumulated Plan Benefits (Fixed Benefit Fund)	\$ 9	9,615,700	\$ 9,685,300	\$ (69,600)	-0.7%
Contributions					
Employer (all funds)	\$	313,519	\$ 311,322	\$ 2,197	0.7%
Employee (all funds)	\$	118,537	\$ 117,241	\$ 1,296	1.1%
Benefits Paid (all funds)	\$	894,056	\$ 858,878	\$ 35,178	4.1%
Number of Active Members		10,585	10,821	(236)	-2.2%
Number of Retirees		24,561	24,629	(68)	-0.3%
This summary is intended for informational purposes only.					



# **To Retirement System Members and Retirees**

The Tennessee Valley Authority Retirement System (System) Board of Directors is pleased to present the 2016 Annual Report for the year ended September 30, 2016. As of September 30, 2016, the net assets of the System totaled \$7.3 billion. For the 12-month period ended September 30, 2016, the System paid \$699 million in benefits to approximately 24,000 retirees and beneficiaries, earned \$729 million on its investments, and received \$275 million in contributions from the Tennessee Valley Authority (TVA). As of September 30, 2016, the net assets of the TVA Savings and Deferral Retirement Plan (401(k) Plan) totaled \$2.1 billion. For the 12-month period ended September 30, 2016, the 401(k) Plan received \$38 million in contributions from TVA.

In April 2016, the System completed the conversion of the 401(k) Plan to a new investment lineup with a transparent, per participant recordkeeping fee structure. Of particular note are the new Target Retirement Portfolios, which provide a simple, efficient and low-cost way for participants to have a diversified asset allocation that gradually becomes more conservative over time based on projected retirement date. These funds are managed by BlackRock Institutional Trust Company, N.A., a leading global investment firm, and currently over 50% of 401(k) Plan participant assets are invested in these funds. We appreciate the work of the System staff in helping the System Board of Directors (System Board) make these improvements to the 401(k) Plan. Fidelity Management Trust Company will continue as the trustee for the 401(k) Plan, and Fidelity Workplace Services LLC will continue as provider of recordkeeping services for the 401(k) Plan.

As many are aware, in December 2015, the System Board received a proposal from TVA requesting changes to retirement benefits. Over the next six months, the System Board negotiated with TVA to arrive at a set of amendments to the Rules and Regulations of the TVA Retirement System and Provisions of the Tennessee Valley Authority Savings and Deferral Retirement Plan that balanced changes across all groups of employees and retirees, had the smallest impact on those with the least time to adjust, and ultimately shifted some benefits from the pension to the 401(k). I believe these amendments are in the best interest of TVA employees and retirees and improve the long-term financial health of the System. The amendments increase the annual minimum contribution required by TVA to at least \$300 million for the next 20 years, reduce current and future System Board, but in the end, TVA employees and retirees will maintain some of the best retirement benefits in our industry and the System has been placed on a more sustainable path going forward.

Other items of interest include the following:

- James W. Hovious was re-elected by the System's members to serve as a director for a new three-year term ending October 31, 2019.
- Since 2010, there has been an on-going lawsuit against TVA and the System concerning amendments to the System's Rules that previously made changes to certain benefits, including COLAs. On August 12, 2016, the United States Court of Appeals for the Sixth Circuit held that COLAs were not vested benefits and therefore could be changed, so we believe the recent amendments that vest COLAs are important in securing a valuable benefit to TVA employees and retirees for years to come.

We are confident the changes to the System and 401(k) Plan will help strengthen and protect the retirement benefits of TVA employees and retirees, and we are committed to helping all of the System's members meet their retirement goals. We are honored to work on your behalf and are pleased to report on the status of the System.

lla Stakes

Allen E. Stokes Chair, Board of Directors TVA Retirement System

# **TVA Retirement System Board of Directors**

### **Elected by Members**



James W. Hovious Elected November 1, 2013

Appointed by TVA



**Brian M. Child** Appointed September 23, 2013

### **Selected by Other Directors**



*Leonard J. Muzyn* Elected November 1, 2003



*Anthony L. Troyani Jr.* Elected November 1, 2008



*John M. Hoskins* Appointed July 28, 2003



Tammy W. Wilson Appointed May 10, 2010



*Allen E. Stokes* Selected March 8, 2011

Due to the retirement of John M. Hoskins from TVA, TVA appointed Wilson Taylor III to replace Mr. Hoskins as a member of the TVARS Board of Directors effective October 5, 2016. Mr. Taylor will serve as a TVA-appointed Director on the TVARS Board until such time as TVA modifies or terminates his appointment.



*Wilson Taylor III* Appointed October 5, 2016

# **Standing Committees**

#### Audit

John M. Hoskins, Chair Tammy W. Wilson James W. Hovious

#### Election

Anthony L. Troyani, Jr., Chair Allen E. Stokes Brian M. Child

#### Investment

Tammy W. Wilson, Chair Anthony L. Troyani, Jr., Vice Chair Brian M. Child Leonard J. Muzyn John M. Hoskins James W. Hovious Allen E. Stokes

# **Board Officers**

Allen E. Stokes Chair

Anthony L. Troyani, Jr. Vice Chair

Patrick D. Brackett Executive Secretary

*William B. Jenkins, Jr.* Assistant Secretary

Sally R. Weber Treasurer

*W. Colby Carter* Assistant Treasurer

Courtney L. Hammontree Assistant Treasurer

*T. Justin Vineyard* Assistant Treasurer

Patrick B. Vananda Assistant Treasurer

**Retirement** Leonard J. Muzyn, Chair John M. Hoskins Brian M. Child

# **Professional Advisers and Investment Managers**

#### **Professional Advisers**

*Actuary* Mercer Human Resource Consulting, Atlanta

*Auditors* Crowe Horwath LLP, South Bend, Indiana

Board Advisers Michael Brakebill, Chief Investment Officer, Tennessee Consolidated Retirement System, Nashville Vincent V. Sands, Executive Vice President and Head of Strategic Initiatives, BNY Mellon Investment Services (retired), Pittsburgh

*Investment Consultant - Pension Plan* Wilshire Associates Incorporated, Pittsburgh

*Investment Consultant – 401(k) Plan* Aon Hewitt Investment Consulting, Inc.

*Legal Counsel* W. Colby Carter, Senior Counsel, TVARS, Knoxville Bradley Arant Boult Cummings LLP, Nashville Groom Law Group, Chartered, Washington D.C

Master Trustee The Bank of New York Mellon, Pittsburgh

401(k) Plan Trustee Fidelity Management Trust Company, Boston

401(k) Plan Recordkeeper Fidelity Workplace Services LLC, Boston

Fixed and Variable Funds Recordkeeper Fidelity Investment Institutional Operations Company, Inc., Boston

> Cash Balance Pension Plan Recordkeeper Aon Hewitt

> > *Medical Adviser* Jon Parham, M.D., Knoxville

*Medical Board* Advanced Medical Reviews, Los Angeles

#### **Investment Managers**

Fixed Benefit Fund Abbott Capital Management LP Acadian Asset Management, LLC Adams Street Partners, LLC AQR Capital Management, LLC Baillie Gifford Overseas Limited Bridgewater Associates, Inc. CoreCommodity Management, LLC Dimensional Fund Advisors LP Fisher Investments Franklin Templeton Institutional, LLC Fidelity Asset Management, LLC **Guggenheim Partners Asset Management** Hancock Natural Resource Group, Inc. HarbourVest Partners, LLC Harvest Fund Advisors, LLC J.P. Morgan Investment Management, Inc. Kennedy-Wilson Holdings, Inc. Landmark Realty Advisors, LLC Lazard Asset Management, LLC Los Angeles Capital Mgmt. & Equity Research, Inc. MacKay Shields, LLC Mellon Capital Management Neuberger Berman, LLC Oaktree Capital Management, LP Pacific Investment Management Company The Prudential Insurance Company of America Prudential Investment Management, Inc. Siguler Guff Advisors, LLC Standish Mellon Asset Management, LLC Stone Harbor Investment Partners LP **TCW Asset Management Company** Tortoise Capital Advisors, LLC Vedanta Capital, LLC Wellington Management Company, LLP Western Asset Management Company Wilshire Associates Incorporated WRH Partners, LLC

> Variable Fund Fidelity Investments Mellon Capital Management

# **Plan Summary**

The Tennessee Valley Authority Retirement System (System) was established by the Tennessee Valley Authority (TVA) in 1939 to provide retirement benefits for TVA employees. When TVA established the System, it also approved the Rules and Regulations of the TVA Retirement System (System Rules), which constitute the legal charter under which the System operates and provide a defined benefit pension plan for certain TVA employees who are members of the System.

The System is a separate legal entity from TVA and is governed by an independent, seven-member Board of Directors (System Board). Three of the directors are appointed by TVA, and three are elected by and from the membership. A seventh director, who is a TVA retiree, is selected by the other six. The System staff performs their work for the System under the supervision and direction of the System Board and the System's Executive Secretary. The Executive Secretary reports directly to the System Board. As loaned employees, the System staff remain TVA employees for all purposes and maintain the same rights and benefits as all other TVA employees. The System reimburses TVA for the compensation and benefits of the TVA employees who serve as the System staff and for any TVA services the System uses for the administration of the System.

### **Actuarial Liability Measurement**

Financial Accounting Standards Board (FASB) Accounting Standards Codification<sup>™</sup> (ASC) 960, *Plan Accounting-Defined Benefit Pension Plans*, establishes generally accepted accounting principles for defined benefit pension plans and is applicable to the System's financial accounting and reporting. Per FASB ASC 960, accumulated plan benefits are to be presented as the present value of future benefits attributable, under the System Rules, to service rendered to the date as of which the actuarial present value of accumulated plan benefits is presented. FASB ASC 715, Compensation – Retirement Benefits, establishes standards of financial accounting and reporting for an employer that sponsors a defined benefit pension plan, such as TVA. Per FASB ASC 715, the projected benefit obligation is measured considering service rendered to date and assumptions as to future compensation levels when the pension benefit formula is based upon future compensation levels. The differences in the objectives and provisions of FASB ASC 960 and FASB ASC 715 result in different measurement bases with respect to TVA's defined benefit pension obligation and the System's accumulated plan benefits, including potential differences in actuarial assumptions used in the measurement of these obligations. Accordingly, these differences in applicable accounting standards result in differences between the present value of accumulated plan benefits as reported in the System's financial statements and the projected benefit obligation reported in TVA's financial statements.

### **Retirement Benefits**

Members of the System include most full-time and part-time annual TVA employees, but exclude TVA Board of Directors members and TVA employees with prior federal service who retain membership in the Civil Service or Federal Employees Retirement System. The retirement benefits for which System members are eligible are set forth in the System Rules. Members first hired prior to July 1, 2014, are eligible for pension benefits derived from TVA's contributions and earnings on System assets under two structures: the Original Benefit Structure (OBS) and the Cash Balance Benefit Structure (CBBS). Eligibility for pension benefits is subject to a vesting requirement of 5 years of service. Members first hired on or after July 1, 2014, or who are rehired and become members of the System again on or after July 1, 2014, and who were previously not vested or who previously received their pension benefit in a lump-sum distribution, are not eligible for a pension benefit under the System.

### **Original Benefit Structure**

Members who were first hired prior to January 1, 1996, and who did not elect to receive a benefit under the CBBS, receive a pension benefit under the OBS, which is calculated based on the member's years of creditable service (to the nearest month), highest average compensation during any three consecutive years of creditable service, and a pension factor, less a Social Security offset.

Creditable service is the length of time spent as a member of the System. It also includes any annual leave forfeited after January 1, 1980, and, at the member's election, the total balance of any unused sick leave. Leave is counted hour for hour for the first 1,000 hours and two hours for each hour in excess of 1,000 hours (2,080 hours equates to one year of creditable service). Forfeited annual leave and unused sick leave may be used in determining both the eligibility for retirement and the amount of the benefit. Creditable service may also include previous periods of membership in the System, certain military service, and some periods of leave without pay.

Members with at least five years of creditable service who are at least attained age 55 are always eligible to receive an immediate benefit. Vested members less than attained age 55 may also receive an immediate benefit unless they are terminated for cause. Members who are at least actual age 45 at retirement and whose age plus creditable service equals 80 or more receive the maximum pension factor of 1.3. Vested members who are at least attained age 60 at the time they begin to receive their pension also receive the maximum pension factor even if their age plus creditable service does not equal 80.

### **Cash Balance Benefit Structure**

The pension benefit under the CBBS is available for (i) members who were first hired prior to January 1, 1996, and who elected to switch their pension benefit from the OBS to the CBBS, and (ii) members who were hired on or after January 1, 1996, and prior to July 1, 2014, with no prior System membership. Members who are rehired by TVA after a break in service of 180 or more consecutive days and who were vested members under the OBS when they were last employed are given an opportunity to receive their pension benefit under the CBBS when they are rehired or at the time they become eligible for System membership.

The pension benefit under the CBBS is based on the balance of a cash balance account established for each member and a conversion factor based on the member's age (to the nearest month). This cash balance account receives pay credits each month equal to 6 percent of compensation, as well as monthly interest credits at the rate established by the System Board each January 1. The interest rate is determined by calculating the percentage change of the 12-month average of the Consumer Price Index-All Urban Consumers (CPI-U) for the period ending the previous October 31 over the preceding 12-month period, plus 3 percent. The System has established a minimum annual interest rate of 6 percent for calendar years 2016 and 2015. Cash balance service is the length of time spent as a member of the System. It does not include credit for unused sick leave, forfeited annual leave, or pre-TVA employment military service. Cash balance service may include previous periods of membership in the System and some periods of leave without pay. Members with at least five years of cash balance service who are at least age 55 may also receive an immediate benefit upon termination. Vested members who are less than age 55 may also receive an immediate benefit unless they are terminated for cause.

### **Supplemental Benefit**

If upon retirement an OBS or CBBS member meets the eligibility criteria, the member will receive a supplemental benefit. This benefit is provided to eligible retirees and eligible surviving spouses to assist with the cost of their medical insurance, although it is not required to be used to pay for medical insurance.

### **Level Income Plan**

The Level Income Plan (LIP) is an optional retirement benefit election intended to provide certain eligible retirees with approximately the same amount of monthly retirement income before and after Social Security benefits are payable, assuming the retiree begins receiving Social Security benefits at age 62. To be eligible for the optional LIP at retirement, a member must be under the OBS or CBBS, eligible for a future Social Security benefit, and younger than age 62.

### **Fixed and Variable Funds**

#### During Employment

The Fixed and Variable Funds provide two after-tax investment options to OBS or CBBS members. The Fixed Fund earns the lesser of 6 percent interest rate or the actuarial assumed rate of investment return of the System's assets less 0.5 percent. Member contributions to the employee account of the Variable Fund are invested in the Fidelity Spartan 500 Index Fund. Members are also permitted to transfer their contributions between the Fixed Fund and the Variable Fund once per calendar month and may, at any time during employment, transfer their entire balance to the TVA Savings and Deferral Retirement Plan (401(k) Plan). Members who transfer their money in the funds to the 401(k) Plan after May 1, 2005, are no longer eligible to contribute to the Fixed and Variable Funds. Prior to retirement, those who first became members before January 1, 1996, may transfer all or any portion of their after-tax account in the 401(k) Plan to the System to receive monthly annuity payments. If members, upon retirement or termination from employment, elect to withdraw the balance in their Variable Fund accounts, the shares in the Fidelity Spartan 500 Index Fund will be redeemed and the proceeds will be paid.

#### After Retirement

Those under the OBS and CBBS who first became members before January 1, 1996, may receive a monthly annuity payment from the Fixed Fund, the Variable Fund, or both. Annuity payments from the Fixed Fund are based on a specified rate of interest set by the System Board. Members who elect to receive an annuity payment from the Variable Fund will have their shares in the Fidelity Spartan 500 Index Fund redeemed and the proceeds used to purchase units in the retiree account of the Variable Fund. The retiree account of the Variable Fund is held by BNY Mellon and is invested in a commingled trust fund with the underlying investment in stocks included in the S&P 500 Stock Index. The value of the retirees' Variable Fund units fluctuates with the value of the net assets in the retiree Variable Fund account. The value of the retiree Variable Fund units is also updated monthly for interest accruals and annually by an actuarial valuation. Retired members may elect to transfer their entire fund balance(s) between the Fixed Fund and the Variable Fund once every 12 months.

Those who first became members on or after January 1, 1996, may not receive a monthly annuity payment from the Fixed and/or Variable Funds when their employment ends.

### **Survivor Options**

#### At Retirement

An OBS or CBBS member decides whether to take the maximum monthly retirement allowance during the member's lifetime, with nothing payable after death, or to take a reduced amount and provide benefits for a survivor.

Each of the various survivor options is the actuarial equivalent of the maximum retirement allowance. Married members who first become members of the System after January 1, 1990, must designate their spouse as beneficiary to receive a survivor benefit as specified by the System Rules or receive their spouse's written consent to select a different survivor option at retirement.

#### After Retirement

OBS or CBBS retirees who marry or remarry after commencement of their retirement allowance may elect to designate their new spouse for either a 50 percent or 100 percent survivor benefit. Retirees have 90 days from the date of such marriage or remarriage to elect this second survivor benefit. This election and actuarial reduction to the retirement benefit would be effective the first day of the month following the first

anniversary of the marriage or remarriage. Previous survivor benefit elections remain in effect for any designated beneficiary whose life expectancy has been used as a factor in determining the amount of the retiree's benefit.

### **Disability Benefits**

A vested OBS or CBBS member may be retired on disability retirement if it is determined that the member cannot continue to work in the member's present position because of a physical or mental disability that is likely to be permanent and there is no other TVA position available for which the member is qualified and can perform with the member's medical restrictions.

### **Death Benefits**

#### During Employment

The designated beneficiary or the estate of an OBS or CBBS member who dies during employment will receive the member's accumulated contributions, if applicable, and a death benefit as set forth in the System Rules.

#### After Retirement

Upon the death of an OBS or CBBS retiree, the benefits payable (if any) depend upon the survivor option selected.

### **Cost-of-Living Adjustments**

Eligible OBS and CBBS retirees may receive cost-of-living adjustments (COLAs) on the pension benefit portion of the monthly retirement allowance (exclusive of LIP) as determined in accordance with the System Rules.

The calculation of the COLA is based on the increase in the 12-month average of the CPI-U when the CPI-U exceeds by as much as 1 percent the CPI-U average for the prior year for which an adjustment was made. The amount of the adjustment is capped at 5 percent in any one year. The System Board may, with the approval of TVA, apply an increase greater than 5 percent. Based on the above calculation, there was no COLA awarded for calendar year 2016, because the change in the 12-month average of the CPI-U did not exceed 1 percent. The COLA was 1.68 percent in calendar year 2015.

Eligible OBS or CBBS retirees and beneficiaries on the retirement payroll on or before January 1 receive the COLA. If an OBS member retires after January 1, that member's pension will be at least as much as it would have been on January 1 with the COLA if the member was eligible to retire on January 1.

Eligible OBS and CBBS members, retirees and beneficiaries will receive COLAs on the supplemental benefit until they reach the maximum as specified in the System Rules.

### **Domestic Relations Orders**

The System accepts a Domestic Relations Order (DRO) that assigns a portion of the member's benefits to a former spouse if the DRO complies with the System's DRO procedures as set forth in the System Rules. The DRO procedures allow a lump-sum distribution to a former spouse from a member's existing Fixed Fund, Variable Fund, and/or 401(k) Plan accounts. A DRO can also provide a recurring monthly benefit to a former spouse that begins upon the member's retirement and receipt of monthly retirement benefits. The payments continue only until the death of the retiree or former spouse. Survivor benefits are determined solely in accordance with the System Rules and the member's beneficiary designations, and they cannot be affected in any way by a DRO.

### Amendments to the System Rules

On August 8, 2016, the System Board approved amendments to the System Rules, and these amendments were also approved by the TVA Board of Directors on August 25, 2016. The amendments, which became effective on October 1, 2016, change future retirement benefits for members and retirees and make certain other changes regarding TVA's minimum funding requirements to the System and System governance. See Note 8 to the financial statements of the System.

This summary is intended to help members understand the System and the benefits under the System. The System Rules, not this summary, are used to determine the benefits to which a member is entitled. For additional information about your retirement benefits, please contact the System at the location or numbers listed at the end of this report.

# **Certification of Financial Statements**

I, Patrick D. Brackett individually certify that:

- 1. I have reviewed the Financial Statements of the Tennessee Valley Authority Retirement System.
- 2. Based on my knowledge, the information in the Financial Statements does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the periods covered by the Financial Statements.
- 3. Based on my knowledge, the Financial Statements and other financial information included in the Annual Report fairly present in all material respects the financial condition and results of operations of the Tennessee Valley Authority Retirement System as of, and for, the periods presented in the Financial Statements.
- 4. I am responsible for establishing and maintaining disclosure controls and procedures for the Tennessee Valley Authority Retirement System and have:
  - a. designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the Tennessee Valley Authority Retirement System is made known to us by others, particularly during the period in which these Financial Statements are being prepared; and
  - b. evaluated the effectiveness of the Tennessee Valley Authority Retirement System's disclosure controls and procedures as of a date within 90 days prior to the date of the Financial Statements.
- 5. I have disclosed, based on my most recent evaluation of internal control over financial reporting, to the Tennessee Valley Authority Retirement System's auditors:
  - a. all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting that are reasonably likely to adversely affect the Tennessee Valley Authority Retirement System's ability to record, process, summarize and report financial information; and
  - b. any fraud, whether or not material, that involves management or other employees who have a significant role in the Tennessee Valley Authority Retirement System's internal control over financial reporting.

April 18, 2017

Patrick D. Brackett *Executive Secretary* 



#### INDEPENDENT AUDITOR'S REPORT

Members and Administrator of Tennessee Valley Authority Retirement System Knoxville, Tennessee

#### **Report on the Financial Statements**

We have audited the accompanying financial statements of the Tennessee Valley Authority Retirement System (Plan), which comprise the statements of net assets available for benefits as of September 30, 2016 and 2015, and the related statements of changes in net assets available for benefits for the years then ended, and the related notes to the financial statements.

#### Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

#### Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the Plan's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Plan's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

#### Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial status of the Tennessee Valley Authority Retirement System as of September 30, 2016 and 2015, and the changes in its financial status for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Crowe Howath ZJP

Crowe Horwath LLP

South Bend, Indiana April 18, 2017

## Tennessee Valley Authority Retirement System Statements of Net Assets Available for Benefits

September 30, 2016 and 2015		
(Dollars in thousands)	2016	2015
Assets		
Investments at fair value	\$7,427,387	\$ 7,129,664
Receivables		
Due from broker	41,457	73,848
Interest and dividends	25,379	26,930
Foreign currency forward receivable	5,144	6,477
Other	1,337	1,279
Total receivables	73,317	108,534
Total assets	\$ 7,500,704	\$ 7,238,198
Liabilities		
Due to broker	179,774	221,933
Derivatives	6,917	32,792
Investment fees payable	8,607	7,627
Other	4,620	3,043
Disbursements payable	827	1,734
Total payables	200,745	267,129
Foreign currency forward payable	9,226	3,976
Liabilities to brokers for securities lending (see Note 4)	2,500	 2,510
Total liabilities	212,471	 273,615
Net Assets Available for Benefits	\$ 7,288,233	\$ 6,964,583

The accompanying notes are an integral part of the financial statements.

## Tennessee Valley Authority Retirement System Statements of Changes in Net Assets Available for Benefits

Fiscal Years Ended September 30, 2016 and 2015

(Dollars in thousands)	2016	2015
Investment Income (Loss)		
Net appreciation (depreciation) in fair value of investments	\$600,994	(\$403,130)
Interest	119,362	94,903
Dividends	46,408	38,743
	766,764	(269,484)
Less investment expenses	(37,678)	(40,153)
Total Investment Income (Loss)	729,086	(309,637)
Contributions		
TVA	275,126	275,141
Members	26,616	26,867
Transfers from 401(k) Plan	5,215	11,393
Total Contributions	306,957	313,401
Total Increase	1,036,043	3,764
Benefits, Transfers, and Expenses		
Retirement benefits - Fixed Benefit Fund	(688,365)	(690,395)
Retirement benefits - Variable Fund	(10,683)	(11,735)
Transfers to 401(k) Plan	(7,434)	(9,694)
Administrative expenses	(5,911)	(5,598)
Total benefits, transfers, and expenses	(712,393)	(717,422)
Net Increase (Decrease)	323,650	(713,658)
Net Assets Available for Benefits		
Beginning of year	6,964,583	7,678,241
End of year	\$ 7,288,233	\$ 6,964,583

The accompanying notes are an integral part of the financial statements.

# **Notes to Financial Statements**

## Note 1 GENERAL PLAN DESCRIPTION

A general summary of the Tennessee Valley Authority Retirement System (System) and benefits under the System is found under "Plan Summary" at the beginning of this Annual Report. Members and retirees should refer to the Rules and Regulations of the TVA Retirement System (System Rules) for complete information.

### Note 2 SIGNIFICANT ACCOUNTING POLICIES

#### **Basis of Accounting**

The financial statements are prepared on the accrual basis of accounting.

#### **Custody Relationships**

The Bank of New York Mellon (BNY Mellon) serves as the Master Trustee (Trustee) of the System and accounts for the entire portfolio. The System has certain commingled fund investments where the investment adviser has contracted the custodial services to a financial institution other than BNY Mellon.

The holdings for private equity funds are investments in limited partnerships and not held at a custody bank. The private equity funds comprise 5.3 percent of the Net Assets Available for Benefits in 2016 and 5.8 percent in 2015. The holdings for the private real estate investments are investments in commercial real estate and also are not held at a custody bank. The private real estate investments comprise 7.9 percent of the Net Assets Available for Benefits in 2016 and 8.2 percent in 2015.

#### **Investment Valuation and Income Recognition**

The System's investments and derivative instruments are reported at fair value. Purchases and sales of securities are recorded on a trade date basis. Interest income is recorded on the accrual basis. Dividends are recorded on the ex-dividend date. Net appreciation (depreciation) includes the System's gains and losses on investments bought and sold as well as held during the year.

Fair value is viewed as the price that would be received by the System for an asset or paid by the System to transfer a liability (an exit price) in an orderly transaction between market participants on the measurement date in the System's principal or most advantageous market for the asset or the liability. There is a fair value hierarchy that maximizes the use of observable inputs and minimizes the use of unobservable inputs when measuring fair value. The hierarchy places the highest priority on unadjusted quoted market prices in active markets for identical assets or liabilities (Level 1 measurements) and gives the lowest priority to unobservable inputs (Level 3 measurements). The three levels of inputs within the fair value hierarchy are defined as follows:

**Level 1 Inputs**: Quoted prices (unadjusted) for identical assets in active markets that the System has the ability to access at the measurement date.

**Level 2 Inputs**: Significant observable inputs other than Level 1 such as quoted prices for similar assets or liabilities, quoted prices in markets that are not active, or other inputs that are observable or can be corroborated by observable market data such as matrix pricing, yield curves, and indices.

**Level 3 Inputs**: Significant unobservable inputs that reflect the System's own assumptions about the assumptions that market participants would use in pricing an asset or liability.

In many cases, a valuation technique used to measure fair value includes inputs from multiple levels of fair value hierarchy. The lowest level of significant input determines the placement of the entire fair value measurement in the hierarchy.

The following descriptions of the valuation methods and assumptions used by the System to estimate the fair value of investments apply to investments held directly by the System. Third-party pricing vendors provide valuations for investments held by the System in most instances, except for commingled, private equity, and private real estate funds which are priced at net asset values established by the investment managers. In instances where pricing is determined to be based on unobservable inputs a Level 3 classification has been assigned.

**Common stock, Registered investment companies, Master limited partnerships, and Preferred securities:** Investments, including common stock, registered investment companies, master limited partnerships, and preferred securities listed on either a national or foreign securities exchange or traded in the over-the-counter National Market System, are generally valued each business day at the official closing price (typically the last reported sale price) on the exchange on which the security is primarily traded and are classified as Level 1. Common stock and preferred securities classified as Level 2 may have been priced by dealer quote or using assumptions based on observable market data.

**Corporate debt securities**: Corporate bonds are valued based upon recent bid prices or the average of recent bid and asked prices when available (Level 2 inputs) and, if not available, they are valued through matrix pricing models developed by sources considered by management to be reliable. Matrix pricing, which is a mathematical technique commonly used to price debt securities that are not actively traded, values debt securities without relying exclusively on quoted prices for the specific securities but rather by relying on the securities' relationship to other benchmark quoted securities (Level 2 inputs).

**Mortgage and asset-backed securities**: Residential mortgage-backed securities consist of collateralized mortgage obligations (CMOs) and U.S. pass-through security pools related to government-sponsored enterprises (GSEs). CMO pricing is typically based on either a volatility-driven, multidimensional, single-cash-flow stream model or an option-adjusted spread model. These models incorporate available market data such as trade information, dealer quotes, market color, spreads, bids, and offers. Pricing for GSE securities, including the Federal Home Loan Mortgage Corporation, the Federal National Mortgage Association, and the Government National Mortgage Association, is typically based on quotes from the To Be Announced (TBA) market, which is highly liquid with multiple electronic platforms that facilitate the execution of trading between investors and broker/dealers. Prices from the TBA market are then compared against other live data feeds as well as input obtained directly from the dealer community. Most residential mortgage-backed securities are considered to be priced using Level 2 inputs because of the nature of their market-data-based pricing models.

Commercial mortgage-backed securities are typically priced based on a single-cash-flow stream model, which incorporates available market data such as trade information, dealer quotes, market color, spreads, bids, and offers. Because of the market-data-based nature of such pricing models, commercial mortgage-backed securities are classified as Level 2.

Asset-backed securities are typically priced based on a single cash-flow stream model, which incorporates available market data such as trade information, dealer quotes, market color, spreads, bids, and offers. Because of the market-data-based nature of such pricing models, asset-backed securities are classified as Level 2.

**Government debt securities:** For U.S. Treasury securities, fair values reflect the closing price reported in the active market in which the security is traded (Level 1 inputs). Agency securities are typically priced using evaluated pricing applications and models incorporating U.S. Treasury yield curves. Agency securities are classified as Level 2 because of the nature of their market-data-based pricing models.

Debt securities issued by state and local governments are typically priced using market-data-based pricing models, and are therefore classified as Level 2. These pricing models incorporate market data such as quotes, trading levels, spread relationships, and yield curves, as applicable.

Foreign government bonds and foreign government inflation-linked securities are typically priced based on proprietary discounted cash flow models, incorporating option-adjusted spread features as appropriate. Debt securities issued by foreign governments are classified as Level 2 because of the nature of their market-data-based pricing models.

**Private equity funds**: Private equity limited partnerships are reported at net asset values provided by the fund managers.

The private equity limited partnerships typically make longer-term investments in private companies and seek to obtain financial returns through long-term appreciation based on corporate stewardship, improved operating processes, and financial restructuring, which may involve a merger or acquisition. Significant investment strategies include venture capital; buyout; mezzanine, or subordinated debt; restructuring, or distressed debt; and special situations. Venture capital partnerships consist of two main groupings. Earlystage venture capital partnerships invest in businesses still in the conceptual stage where products may not be fully developed and where revenues and/or profits may be several years away. Later-stage venture capital partnerships invest in more mature companies in need of growth or expansion capital. Buyout partnerships provide the equity capital for acquisition transactions either from a private seller or the public, which may represent the purchase of the entire company or a refinancing or recapitalization transaction where equity is invested. Mezzanine or subordinated debt partnerships provide the intermediate capital between equity and senior debt in a buyout or refinancing transaction and typically own a security in the company that carries current interest payments as well as a potential equity interest in the company. Restructuring or distressed debt partnerships purchase opportunities generated by overleveraged or poorly managed companies. Special situation partnerships include organizations with a specific industry focus not covered by the other private equity subclasses or unique opportunities that fall outside the regular subclasses.

The private equity funds have no investment withdrawal provisions prior to the termination of the partnership. The restricted investments of the private equity funds amounted to \$383 million as of September 30, 2016, and \$407.0 million as of September 30, 2015. Partnerships generally continue 10 to 12 years after the inception of the fund. The partnerships are also generally subject to various extension periods at the discretion of the General Partner. The contractual maturities of private equity funds held in 2016 range from October 2016 to January 2026 before the extensions are applied. Partnerships can generally be dissolved by an 80 percent vote in interest by all limited partners, with some funds requiring the occurrence of a specific event.

**Private real estate investments**: The System's ownership in private real estate investments consists of a pro rata share and not a direct ownership of the underlying investments. The fair values of the System's private real estate investments are estimated utilizing net asset values provided by the investment managers. The methodologies utilized by the investment managers to calculate their net asset values are summarized as follows:

The System is invested in limited partnerships that invest in real estate securities, real estate partnerships, and in direct real estate properties. This includes investments in office, multifamily, industrial, and retail investment properties in the U.S. and international markets. The investment strategy focuses on distressed, opportunistic, and value-added opportunities. Partnership investments also include mortgage and/or real estate-related fixed-income instruments and related securities. Investments are diversified by property type and geographic location.

The System is invested in a commingled fund that develops, renovates, and re-leases real estate properties to create value. Investments are predominantly in top tier real estate markets that offer deep liquidity. Property types include residential, office, industrial, hotel, retail, and land. Properties are diversified by geographic

region within the U.S. domestic market. The System is invested in a second commingled fund that invests primarily in core, well-leased, operating real estate properties with a focus on income generation. Investments are diversified by property type with a focus on office, industrial, apartment, and retail. Properties are diversified within the U.S. with an overweight to major market and coastal regions.

Fair value estimates of the underlying investments in these limited partnerships and commingled fund investments are primarily based upon property appraisal reports prepared by independent real estate appraisers within a reasonable amount of time following acquisition of the real estate and no less frequently than annually thereafter. The appraisals are based on one or a combination of three methodologies: cost of reproduction analysis, discounted cash flow analysis, and sales comparison analysis. Pricing for certain investments in mortgage-backed and asset-backed securities is typically based on models that incorporate observable inputs.

The System is invested in a private real estate investment trust formed to make direct or indirect investments in commercial timberland properties. Pricing for these types of investments is based on comprehensive appraisals that are conducted shortly after initial purchase of properties and at three-year intervals thereafter. All appraisals are conducted by third-party timberland appraisal firms. Appraisals are based on either a sales comparison analysis or a discounted cash flow analysis.

The redemption provisions vary by fund and are detailed below:

#### **Private Real Estate Investment Restrictions**

		2016		2015
(Dollars in thousands)	<b>Fair</b> I	Market Value	Fair l	Market Value
Withdrawals available quarterly	\$	450,804	\$	450,092
Restricted - No withdrawals until partnership termination	\$	93,697	\$	91,131
Sale of shares permitted under prescribed guidelines	\$	30,796	\$	30,545

The contractual maturities of private real estate investments held in 2016 range from December 2017 to March 2027.

**Derivatives**: The System invests in a variety of derivative instruments. The valuation methodologies for these instruments are as follows:

*Futures:* The System enters into futures. The futures contracts are listed on either a national or foreign securities exchange and generally valued each business day at the official closing price (typically the last reported sales price) on the exchange on which the security is primarily traded. The pricing is performed by third-party vendors. Since futures are priced by an exchange in an active market, they are classified as Level 1.

*Options:* The System enters into purchased and written options. Options that are listed on either a national or foreign securities exchange are generally valued each business day at the official closing price (typically the last reported sales price) on the exchange on which the security is primarily traded. These options are classified as Level 1. Options traded over the counter and not on exchanges are priced by third-party vendors and are classified as Level 2.

*Swaps:* The System enters into various types of swaps. Credit default swaps are priced at market using models that consider cash flows, credit curves, recovery rates, and other factors. The pricing is performed by third-party vendors. Interest rate swap contracts are priced at market using forward rates derived from the swap curve, and the pricing is also performed by third-party vendors. Other swaps such as total return swaps and inflation swaps are priced by third-party vendors using market inputs such as spot rates, yield curves, and volatility. The System's swaps are generally classified as Level 2 based on the observable nature of their pricing inputs.

*Foreign currency forwards:* The System enters into foreign currency forwards. All commitments are marked to market daily at the applicable translation rates, and any resulting unrealized gains or losses are recorded. Foreign currency forwards are priced by third-party vendors and are classified as Level 2.

See Note 3 for additional information regarding derivative financial instruments.

**Commingled funds**: The System invests in commingled funds, which are classified by general type as common-collective trusts, limited liability companies, and a limited partnership. The System's ownership consists of a pro rata share and not a direct ownership of an underlying investment. These funds are valued at their closing net asset values (or unit value) per share as reported by the managers of the funds and as supported by the unit prices of actual purchases and sale transactions occurring as of or close to the financial statement date. The investment strategies of these funds are summarized as follows.

The System is invested in equity common-collective trusts, which can be categorized as either passively managed index funds or actively managed funds. The System is invested in an actively managed equity limited partnership. The equity index funds seek to track the performance of a particular index by replicating its capitalization and characteristics. Passive fund benchmark indices include the Russell 1000 index, the S&P 500 index, and the Morgan Stanley Capital International All Country World Index ex-U.S. The actively managed equity funds seek to outperform certain equity benchmarks through a combination of fundamental and technical analysis. Active funds select portfolio positions based upon their research.

The System is invested in debt limited liability companies and a debt common-collective trust, which can be categorized as actively managed funds. The actively managed debt funds seek to outperform certain fixed-income benchmarks through fundamental research and analysis. The funds invest in a diversified portfolio of fixed income securities and derivatives of varying maturities. The objective is to achieve a positive relative total return through active credit selection.

The System is invested in a commodity common-collective trust and a commodity limited liability company, which can be categorized as actively managed funds. The funds seek to outperform certain commodity benchmarks through fundamental research and analysis. The funds invest in a diversified portfolio of commodity securities and derivatives of varying maturities. The objective is to achieve a positive relative return through active security selection.

The System is invested in a common-collective trust which invests across multiple asset classes that can be categorized as blended. This fund seeks to outperform a passive benchmark through active security selection. The funds invest in securities across equity, fixed income, currency and commodities. The portfolio employs fundamental, quantitative and technical analysis.

The System's investments in equity, debt, blended, and commodity funds can generally be redeemed upon notification of the investment managers, with required notice periods varying from same-day to monthly. These investments do not have unfunded commitments.

**Securities lending collateral:** Collateral held under securities lending arrangements is held in a separately managed account which invests in various short term investments, such as repurchase agreements. Repurchase agreements and other short term investments are often priced at cost, which approximates fair value due to the short-term nature of the instruments.

**Cash equivalents and other short-term investments and certificates of deposit:** Cash equivalents and other short-term investments are highly liquid securities with a maturity of less than three months and 12 months, respectively. These consist primarily of discount securities such as commercial paper, repurchase agreements, U.S. Treasury bills, and certain agency securities. These securities, as well as certificates of deposit, may be priced at cost, which approximates fair value due to the short-term nature of the instruments. Model based pricing which incorporates observable inputs may also be utilized. These securities are classified as Level 2. Active market pricing may be utilized for U.S. Treasury bills, which are classified as Level 1.

The valuation methods described above may produce a fair value calculation that may not be indicative of net realizable value or reflective of future fair values. Furthermore, while the System believes its valuation methods are appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine the fair value of certain financial instruments could result in a different fair value measurement at the reporting date.

Investments and derivative instruments measured at fair value on a recurring basis are summarized on the following tables.

#### Assets and Liabilities at Fair Value

Investments and derivative instruments measured at fair value on a recurring basis at September 30, 2016, are summarized below:
<u>Fair Value Measurements at September 30, 2016, Using</u>

(dollars in thousands)	Total	Quoted Prices in Active Markets for Identical Assets Level 1	Significant Other Observable Inputs Level 2	Significant Unobservable Inputs Level 3
Investments				
Common stock	\$1,561,843	\$1,560,846		\$997
Registered investment companies	73,480	73,480		
Master limited partnerships	267,761	267,761		
Preferred securities	20,598	4,322	16,276	
Corporate debt securities	1,193,280		1,187,461	5,819
Mortgage and asset-backed securities	361,348		333,818	27,530
Government debt securities	587,445	232,077	355,146	222
Commingled funds measured at net asset value <sup>(a)(b)</sup>	1,946,996			
Cash equivalents and other short-term investments	419,842	27,292	392,479	71
Certificates of deposit	16,254		16,254	
Private equity funds measured at net asset value <sup>(a)</sup>	383,414			
Private real estate investments measured at net asset value <sup>(a)</sup>	575,297			
Treasury bills, U.S. Government notes, and securities held as				
futures and other derivative collateral	12,734	4,202	8,532	
Securities lending collateral	2,500		2,500	
Derivatives				
Futures	2,468	2,468		
Options	669	312	283	74
Swaps	1,458		1,437	21
Investments at fair value	\$7,427,387	2,172,760	\$2,314,186	34,734
Foreign currency forward receivable	5,144		5,144	
Total Investments and Foreign Currency Forward Receivable at	¢7 400 F04	¢2 172 760	\$2,210,220	¢34 734
Fair Value Liabilities	\$7,432,531	\$2,172,760	\$2,319,330	\$34,734
Derivatives		•		
Futures	\$1,909	\$1,909	+	
Options	682	410	\$271	\$1
Swaps	4,326		4,309	17
Foreign currency forward payable	9,226	40.010	9,226	***
Total Derivative Liabilities at Fair Value	\$16,143	\$2,319	\$13,806	\$18

<sup>(a)</sup> Certain investments that are measured at fair value using the net asset value per share (or its equivalent) practical expedient have not been classified in the fair value hierarchy. The fair value amounts presented in this table are intended to permit reconciliation of the fair value hierarchy to the amounts presented in the statement of net assets available for benefits.

<sup>(b)</sup>Includes the following general investment types:

Common-collective trusts	1,229,587
Limited liability companies	652,531
Limited partnership	64,878

#### Assets and Liabilities at Fair Value

Investments and derivative instruments measured at fair value on a recurring basis at September 30, 2015, are summarized below:

Fair Value Measurements at September 30, 2015, Using

(dollars in thousands)	Total	Quoted Prices in Active Markets for Identical Assets Level 1	Significant Other Observable Inputs Level 2	Significant Unobservable Inputs Level 3
Investments	*****	*****	***	******
Common stock	\$1,396,442	\$1,395,340	\$38	\$1,064
Registered investment companies	73,438	73,438		
Master limited partnerships	253,614	253,614		
Preferred securities	36,066	2,187	33,879	
Corporate debt securities	1,215,295		1,205,026	10,269
Mortgage and asset-backed securities	373,844		340,286	33,558
Government debt securities	751,522	432,749	314,269	4,504
Commingled funds measured at net asset value <sup>(a)(b)</sup>	1,828,157			
Cash equivalents and other short-term investments	173,943		173,788	155
Certificates of deposit	7,642		7,642	
Private equity funds measured at net asset value <sup>(a)</sup>	407,020			
Private real estate investments measured at net asset value <sup>(a)</sup>	571,768			
Treasury bills, U.S. Government notes, and securities held as				
futures and other derivative collateral	34,315	21,477	12,838	-
Securities lending collateral	2,510		2,510	
Derivatives				
Futures	2,159	2,159		
Options	1,542	73	1,469	
Swaps	387		387	
Investments at fair value	\$7,129,664	2,181,037	\$2,092,132	49,550
Foreign currency forward receivable	6,477		6,477	
Total Investments and Foreign Currency Forward Receivable at				
Fair Value	\$7,136,141	\$2,181,037	\$2,098,609	\$49,550
Liabilities				
Derivatives				
Futures	\$18,930	\$18,930		
Options	1,922	106	\$1,812	\$4
Swaps	11,940	100	11,940	ψı
Foreign currency forward payable	3,976		3,976	
Total Derivative Liabilities at Fair Value	\$36,768	\$19,036	\$17,728	\$4
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<sup>(a)</sup> Certain investments that are measured at fair value using the net asset value per share (or its equivalent) practical expedient have not been classified in the fair value hierarchy. The fair value amounts presented in this table are intended to permit reconciliation of the fair value hierarchy to the amounts presented in the statement of net assets available for benefits.

<sup>(b)</sup> Includes the following general investment types:	
Common-collective trusts	1,177,026
Limited liability companies	599,938
Limited partnership	51,193

The table below presents a reconciliation of System investments measured at fair value on a recurring basis using significant unobservable inputs (Level 3) for the years ended September 30, 2016 and 2015, including the reporting classifications for the applicable gains and losses included in the Statements of Changes in Net Assets Available for Benefits.

#### Summary of Fair Value Measurements Using Significant Unobservable Inputs (Level 3) Transactions

The table below presents a reconciliation of System investments measured at fair value on a recurring basis using significant unobservable inputs (Level 3) for the year ended September 30, 2016.

							Net change in unrealized
					Net realized/		appreciation
		*Transfers in			unrealized		(depreciation) relating to
	September 30,	and/or out of			appreciation/	September 30,	investments still held at
(Dollars in thousands)	2015	Level 3	Purchases	Sales	(depreciation)	2016	September 30, 2016
Mortgage and asset-backed securities	\$33,558	(\$660)	\$9,320	(\$14,374)	(\$314)	\$27,530	(\$303)
Corporate debt securities	10,269	(5,864)	2,001	(1,626)	1,039	5,819	1,039
Government debt securities	4,504	(291)	211	(4,152)	(50)	222	
Cash equivalents and short-term							
investments	155	14			(98)	71	(98)
Common stock	1,064	105			(172)	997	(172)
Swaps - assets			21			21	
Swaps - liabilities			(17)			(17)	
Options - assets			74			74	
Options - liabilites	(4)		(2)		5	(1)	
	\$49,546	(\$6,696)	\$11,608	(\$20,152)	\$410	\$34,716	\$466

#### Summary of Fair Value Measurements Using Significant Unobservable Inputs (Level 3) Transactions

The table below presents a reconciliation of System investments measured at fair value on a recurring basis using significant unobservable inputs (Level 3) for the year ended September 30, 2015.

							Net change in unrealized
					Net realized/		appreciation
		*Transfers in			unrealized		(depreciation) relating to
	September 30,	and/or out of			appreciation/	September 30,	investments still held at
(Dollars in thousands)	2014	Level 3	Purchases	Sales	(depreciation)	2015	September 30, 2015
Mortgage and asset-backed securities	\$24,751	(\$3,187)	\$24,628	(\$13,087)	\$453	\$33,558	\$411
Corporate debt securities	15,852	(6,504)	5,362	(4,054)	(387)	10,269	(160)
Preferred securities	267	(267)					
Government debt securities			1,071		3,433	4,504	3,433
Cash equivalents and short-term							
investments	155	0	0	0	0	155	
Common stock	1,215			(292)	141	1,064	185
Swaps	19	(17)		(1)	(1)		
Options - assets	4			(7)	3		
Options - liabilites	(8)	(3)	(3)	7	3	(4)	2
	\$42,255	(\$9,978)	\$31,058	(\$17,434)	\$3,645	\$49,546	\$3,871

\* It is the System's policy to recognize transfers between fair value hierarchy levels at the beginning of the month for transfers identified by the custodian, and at the beginning of the reporting period for transfers identified by the System. In most cases, transfers between levels are the result of the custodian's and/or the System's evaluation of pricing information.

**Valuation Control Processes** — System management has control processes that are designed to ensure that fair value measurements are appropriate and reliable and that the valuation approaches are consistently applied. The Audit Committee of the TVA Retirement System Board of Directors (System Board) is responsible for reviewing the adequacy of the organization's system of internal control.

Management's valuation controls include:

- Reviewing annually the valuation and fair value hierarchy policies and practices of the Trustee
- Reviewing annually the valuation policies and methodologies of major third-party pricing vendors utilized by the Trustee

- Reviewing quarterly the pricing and position reconciliations performed by investment managers and the Trustee. Tolerance thresholds by investment type are set by both the investment managers and the Trustee. Discrepancies are investigated by both parties.
- Reviewing the quarterly statements and annual audited financial statements of all commingled and limited partnership funds. Reconciliations are performed verifying the Trustee records match the fund records. Audit opinions are reviewed and any qualifications or disclaimers trigger further inquiry.
- Reviewing semi-annually the pricing sources, investment type categorizations, and fair value hierarchy classifications of all investment positions. Non-vendor pricing sources are inquired upon via the Trustee and/or the investment manager as appropriate. Trustee investment type categorizations are reviewed and Management may make reclassifications based on investment descriptions or other available information. Trustee fair value hierarchy classifications are reviewed and management may make reclassifications information.
- Reviewing monthly investment manager guideline compliance and performance relative to applicable investment management agreements and benchmarks, respectively.
- A SOC1 Type 2 examination, which includes testing of System controls over investment valuation and financial reporting, is performed annually upon the System. The resulting report is distributed to the System Board, System management, the System's independent auditor, the Tennessee Valley Authority (TVA), and TVA's independent auditor. Control testing exceptions are reviewed by the System Board and corrective action is taken as appropriate.

**Asset Allocation** —Over the long-term, asset allocation is expected to be the single greatest contributor of risk and return to the System's investments. The asset allocation policy embodies the System Board's decisions about what proportions of the System's assets will be invested in various asset classes. The policy is based on an asset-liability analysis conducted periodically by the investment consultant and the System's actuaries, and the return objectives, risk tolerance, and liquidity needs of the System.

The recommended long-term asset allocation policy is identified by strategic target weights to each of the major asset classes. In addition, minimum and maximum allocations are provided to serve as guidelines for the range of the asset classes. The asset classes may fluctuate within the bands established by the minimum and maximum allocation ranges before the System's investment staff considers reallocating from one asset class to another.

Target allocations are as follows:

	Target
Asset Category	Allocation
Public equity	39%
Private equity	8%
Safety oriented fixed income	15%
Opportunistic fixed income	15%
Public real assets	15%
Private real assets	8%
Total	100%

#### **Risks and Uncertainties**

The System invests in securities and derivative instruments which are exposed to various risks such as interest rate, market, liquidity, and credit risks. Due to the level of risk associated with certain investments and the sensitivity of certain fair value estimates to changes in valuation, it is at least reasonably possible that changes in the values of investments will occur in the near term and that such changes could materially affect the amounts reported in the Statements of Net Assets Available for Benefits and members' individual account balances.

System contributions are made and the actuarial present value of accumulated plan benefits is reported based on certain assumptions pertaining to interest rates, inflation rates, and employee demographics, all of which are subject to change. Due to uncertainties inherent in the estimation and assumption processes, it is at least reasonably possible that changes in these estimates and assumptions in the near term could materially affect the amounts reported and disclosed in the financial statements.

#### **Tax Status**

The Internal Revenue Service (IRS) determined and informed the System in August 2014 that the System Rules are designed in accordance with the applicable sections of the Internal Revenue Code (IRC). The System Rules have been amended subsequent to the receipt of the latest IRS determination letter. However, System management and its tax counsel believe that the System and the System Rules are currently designed and being operated in compliance with the applicable requirements of the IRC. Therefore, no provision for income taxes has been included in these financial statements.

As a plan maintained for employees of an agency of the federal government, the System is a governmental plan within the meaning of Section 3(32) of the Employment Retirement Income Security Act of 1974 (ERISA) and Section 414(d) of the IRC. As a governmental plan, the System is exempt from ERISA and the requirements of the IRC that parallel those contained in ERISA, which govern private employer retirement plans.

Accounting principles generally accepted in the United States of America require System management to evaluate tax positions taken by the System. A tax position is recognized as a benefit only if it is "more likely than not" that the tax position would be sustained in a tax examination, with a tax examination presumed to occur. The amount recognized is the largest amount of tax benefit that is greater than 50% likely of being realized upon examination. For tax positions not meeting the "more likely than not" test, no tax benefit is recorded.

System management has analyzed the tax positions it has taken, and has concluded that as of September 30, 2016 and 2015, there are no uncertain positions taken or expected to be taken that would require recognition of a liability (or asset) or disclosure in the financial statements. The System is subject to audit by the Internal Revenue Service, Tax Exempt and Government Entities Division; however, there are currently no audits for any tax periods in progress. System management believes it is no longer subject to plan qualification examinations for years prior to 2010.

#### **Management Estimates**

The preparation of financial statements in conformity with generally accepted accounting principles in the United States requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date(s) of the financial statements and the reported amounts of revenues and expenses during the reporting period(s). Management also uses estimates and assumptions in determining the actuarial present value of accumulated System benefits and the changes in actuarial present value of accumulated System benefits. Actual results could differ materially from those estimates.

## Note 3 DERIVATIVE FINANCIAL INSTRUMENTS

The System is party to derivative financial instruments in its normal course of business. Interest rate futures, options, and swaps, forward volatility options, and inflation rate floor options may be utilized for managing duration and yield curve risk. Credit default swaps and options may be utilized to obtain credit default protection or as a substitute for the bond, but not to employ leverage. Foreign currency forwards, options, and futures may be utilized to hedge risks associated with short-term exchange rate fluctuations or implement active management decisions via the currency markets. Equity futures and options, total return swaps, and variance swaps may be used in the implementation of various active management strategies. Derivatives are not to be used to effectively leverage the portfolio. Net exposures resulting from derivatives transactions must be covered by holdings within the portfolio. Under the investment management agreements, investment managers may not use derivative financial instruments to fundamentally change the risk/return profile of their portfolios relative to their benchmarks. Additionally, these managers cannot invest in asset classes that are inconsistent with the benchmarks of their strategies. The derivative strategies employed by the managers in their individual portfolios can expose the System to market and credit risk.

The System has counterparty exposure in the derivative instruments of certain currency forwards, options, and swaps. Such contracts and agreements have been executed with creditworthy counterparties. Thus, the System considers the risk of nonperformance to be remote. The credit risks associated with these instruments are controlled through the evaluation and continual monitoring of the creditworthiness of the counterparties. The System also reviews the credit ratings of counterparties on a regular basis. In the event that a counterparty fails to meet the terms of a contract or agreement, the System's exposure should be limited to the currency rate differential or contract differential.

The right of set-off generally exists in the event of default for System derivatives, which would be applied based on contract terms. Typically set-off would be permitted by counterparty to each investment manager. The total market value exposure will normally also be set-off against collateral exchanged to date, which would result in a net receivable/(payable) that would be due from/to the counterparty.

A summary of derivatives is presented on the following page.

# Fair Values of Derivative Instruments on Statements of Net Assets Available for Benefits

Effect of Derivative Instruments on the Statement of Changes in Net Assets for the year ended September 30, 2016

as of September 30, 2016 Notional Amount*         as of September 30, 2015 Notional Amount*         Net Appreciation (Depreciation)           Futures contracts Assets Equity futures Foreign currency futures Interest rate futures Total futures contract assets         \$ 260,471         \$ 1,751         \$ (17,103)         \$ 206           Foreign currency futures Foreign currency futures Foreign currency futures         \$ 240,546         \$ 2,159         \$ 246,936         \$ 2,159           Liabilities Foreign currency futures         \$ 84,069         \$ (1,102)         \$ 5 683,474         \$ (1,514)           Foreign currency futures         \$ 84,069         \$ (1,102)         \$ 5 683,474         \$ (1,5154)           Fourtherency futures         \$ (13,135)         \$ (10,20)         \$ (26,173)         \$ (15,721)           Foreign currency futures         \$ (14,315)         \$ (10,909)         \$ 94,531         \$ (18,720)           Foreign currency options         \$ 112,72         \$ 246         \$ 67,59         \$ 53,287           Option contracts         \$ 12,221         \$ 244         \$ 67,59         \$ 1,362           Credit default swap options         \$ 12,321         \$ 246         \$ 76,799         \$ 1,542           Liabilities         \$ 112,379         \$ (13,200)         \$ (1,652)         \$ (16,600)         \$ (2,449)           Total protei							2016			
Amount *         Fair Value         Amount *         Fair Value         (Depreciation)           Aussets         Equity futures         5 260,471         \$ 1,751         \$ (17,103)         \$ 206           Foreign currency futures         (21,362)         67         8,456         64         64           There of the futures         (21,362)         67         8,456         64         64           Tubul futures contract assets         \$ 366,793         \$ 2,468         \$ 236,546         \$ 2,159           Liabilities         Equity futures (64,135)         (132)         (387,180)         (2,622)           Total futures contract liabilities         \$ 189,228         \$ 559         \$ 3310.077         \$ (16,771)         \$ 53,287           Option contracts         Assets         -         - $67,799$ $53$ $(739, 53)$ \$ (16,771)         \$ 53,287           Option contracts         Assets         -         - $67,799$ \$ 1,362         -         - $76,799$ \$ 1,362         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -		-	ber	30,2016	as of September 30, 2015 Notional		r 30, 2015	Net Appreciation		
Assets         Foreign currency futures         \$ 260,471         \$ 1,751         \$ (17,103)         \$ 206           Foreign currency futures         127,684         650         245,193         1,489           Total futures contract assets         \$ 366,793         \$ 2,468         \$ 236,546         \$ 2,159           Liabilities         Foreign currency futures         (64,135)         (12)         \$ 683,474         \$ (14,514)           Foreign currency futures         (64,135)         (12)         (387,180)         (2,622)           Interest rate futures         \$ 189,228         \$ 559         \$ 331,077         \$ (16,771)         \$ 53,287           Option contracts         \$ 189,228         \$ 559         \$ 331,077         \$ (16,771)         \$ 53,287           Option contracts         \$ 189,228         \$ 559         \$ 331,077         \$ (16,771)         \$ 53,287           Option contracts         \$ 189,228         \$ 669         767,59         \$ 1,362         \$ 669           Total purchased options         12,321         244         6,759         \$ 53           Total purchased options         (14,715)         (1         (19,300)         (195)           Foreign currency options         (14,715)         (101,800)         \$ (16,122)			Fa	ir Value		Fai	ir Value			
	Futures contracts									
	Assets									
$ \begin{array}{    l                                $	Equity futures	\$ 260,471	\$	1,751	\$ (17,103)	\$	206			
Total futures contract assets       \$ 366,793       \$ 2,468       \$ 236,546       \$ 2,159         Liabilities       Foreign currency futures       5 84,069       \$ (1,102)       \$ 683,474       \$ (14,514)         Foreign currency futures       (197,499)       (795)       (201763)       (12,794)         Total Futures       5 189,228       5 559       \$ 331,077       \$ (16,771)       \$ 53,287         Option contracts       Assets       Purchased options       1,362       (17,759)       \$ (14,715)       \$ 8,200       127         Foreign currency options       9,810       3       8,200       127       53,287         Credit default swap options       (14,715)       (10,800)       \$ (1,652)       53       53,287         Undefinities       (14,715)       (10,800)       \$ (1,652)       53       53,287       53,287         Undefinities       (14,715)       (10,800)       \$ (1,652)       53       53,287       53,287         Undefinities       (14,715)       (10,800)       \$ (1,652)       53       53,287       53,287         Undefinities       (14,715)       (11,800)       \$ (1,652)       53       53,287       53,393       5,353       5,453       5,453       5,453	Foreign currency futures	(21,362)		67	8,456		64			
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	Interest rate futures	127,684		650	245,193		1,889			
Equity futures       \$ 84,069       \$ (1,102)       \$ 683,474       \$ (14,514)         Proreign currency futures       (197,499)       (725)       (201,763)       (16,721)         Total futures contract liabilities       \$ 189,228       \$ 559       \$ 331,077       \$ (16,771)       \$ 53,287         Option contracts       Assets         \$ 189,228       \$ 559       \$ 331,077       \$ (16,771)       \$ 53,287         Option contracts       Assets         \$ 189,228       \$ 559       \$ 331,077       \$ (16,771)       \$ 53,287         Option contracts       Assets         \$ 189,228       \$ 559       \$ 331,077       \$ (16,771)       \$ 53,287         Option contracts       Assets         \$ 2,000       \$ 1,362       \$ 5,739       \$ 53,287         Purchased options       14,401       \$ 42,22       753,000       \$ 1,362       \$ 5,759       \$ 53,279       \$ 53,279       \$ 53,279       \$ 53,279       \$ 53,279       \$ 53,279       \$ 53,279       \$ 53,279       \$ 53,279       \$ 53,279       \$ 1,542       \$ 1,541       \$ 1,652       \$ 1,652       \$ 1,652       \$ 1,614       \$ 1,652       \$ 1,614,175       \$ 1,61,193       \$ 1,652       \$ 1,614,185	Total futures contract assets	\$ 366,793	\$	2,468	\$ 236,546	\$	2,159			
	Liabilities									
$\frac{ 1477.563 }{\text{Total futures contract liabilities}} = \frac{(197,499)}{\$(177,565) \$(1,909)} = \frac{(201,763)}{\$ 94,531 \$(18,930)} = \frac{(1,744)}{\$ 94,531 \$(18,930)}$ $\frac{\text{Total Futures}}{\text{Total Futures}} = \frac{\$ 189,228 \$ 559}{\$ 331,077 \$(16,771)} \$ 53,287$ $\frac{\text{Option contracts}}{\text{Assets}}$ $\frac{\text{Purchased options}}{\text{Purchased options}} = \frac{14,401 \$ 422}{12,221} = \frac{753,000 \$(16,771)}{44,401 \$(4614)1 \$vap options} = \frac{12,321}{12,321} = \frac{244}{6,759} = \frac{6}{5}$ $\frac{1,202}{5,522} \$ \frac{1,542}{5,542} = \frac{1,202}{12,321} = \frac{1,202}{12,321} = \frac{244}{6,759} = \frac{6}{5,542} = \frac{1,202}{12,321} = \frac{244}{12,401} = \frac{6}{5,552} \$ \frac{1,542}{5,542} = \frac{1,202}{12,321} = \frac{1,202}{12,321} = \frac{244}{12,390} = \frac{6}{12,542} = \frac{1,202}{12,321} = \frac{244}{12,390} = \frac{6}{12,542} = \frac{1,202}{12,321} = \frac{2}{12,321} = \frac{2}{12,323} = \frac{2}{12,322} = \frac{2}{12,323} = \frac{2}{12,323} = \frac{2}{12,323} = \frac{2}{12,323} = \frac{2}{12,323} = \frac{2}{12,324} $	1 5				\$ 683,474	\$	(14,514)			
Total futures contract liabilities       \$ (177,565) \$ (1909)       \$ 94,531 \$ (18,930)         Total futures       \$ 189,228 \$ 559       \$ 331,077 \$ (16,771)       \$ 53,287         Option contracts Assets       Purchased options $41,401$ \$ 422 $75,000$ \$ 1,362         Credit default swap options $9,810$ 3 $8,200$ $12.7$ Foreign currency options $12,321$ $244$ $6,759$ $53$ Total purchased option assets $63,532$ \$ $669$ $767,959$ \$ $1,542$ $1.6721$ Liabilities       Written options $(14,715)$ (1) $(10,800)$ \$ $(1,652)$ $Credit default swap options         Infation rate floor options       (12,000) (5)       (13,900) (14)       (16,5898) $ (1,922)         Total written option liabilities       (15,379) $ (13) 602,061 $ (380)       $ (2,449)         Swaps       Assets 112,184 1,086 (515) 7         Inflation rate swap contracts       112,184 1,086 (155) 7         Total Aver contracts       5115,97 $ 198 6,168 $ 197 15,438         Interest rate swap contracts       14,797 $ 1,458 23,136 $ 5387 12,449         Interest rate swap contracts       16,7587 (1,031$	5									
Total Futures $$$ 189,228 $$ $$559$ $$$ 331,077 $$ $$$ (16,771)$ $$$ 53,287$ Option contracts Assets         Assets $$$ $$131,077 $$ $$$ (16,771)$ $$$ 53,287$ Option contracts         Assets $$$ $$231,077 $$ $$$ (16,771)$ $$$ $$ 53,287$ Option contracts $$$ $$331,077 $$ $$$ (16,771)$ $$$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $										
Option contracts Assets         Assets           Purchased options         41,401         \$ 422         753,000         \$ 1,362           Credit default swap options         9,810         3         8,200         127           Foreign currency options         12,321         244         6,759         5.3           Total purchased option assets         63,532         \$ 669         767,959         \$ 1,542           Liabilities         Written options         (14,715)         (1)         (49,390)         (195)           Foreign currency options         (12,200)         (5)         (13,900)         (14)           Inflation rate floor options         (12,000)         (5)         (13,900)         (14)           Total vertice options         (12,000)         (5)         (14,9390)         (195)           Foreign currency options         (12,000)         (5)         (13,900)         (14)           Total vertice options         (12,000)         (5)         (13,900)         (14)           Total vertice options         (12,000)         (5)         (13,900)         (14)           Total vertice options         (12,007)         \$ 198         6,168         197           Total vertine tabe wap contracts         \$ 112,184 <td>Total futures contract liabilities</td> <td>\$(177,565)</td> <td>\$</td> <td>(1,909)</td> <td>\$ 94,531</td> <td>\$</td> <td>(18,930)</td> <td></td>	Total futures contract liabilities	\$(177,565)	\$	(1,909)	\$ 94,531	\$	(18,930)			
Asets         Purchased options       41,401       \$ 422       753,000       \$ 1,362         Credit default swap options       9,810       3       8,200       127         Foreign currency options       12,321       244       6,759       5.3         Total purchased option assets       63,532       \$ 669       767,959       \$ 1,542         Liabilities       Written options       (14,715)       (1)       (49,390)       (195)         Foreign currency options       (12,000)       (5)       (13,900)       (14)         Total written options       (15,379)       \$ (1,300)       \$ (1,922)         Total options       (15,379)       \$ (13)       602,061       \$ (380)       \$ (2,449)         Swaps       (515)       77       (808)       (61)       (11,922)         Total options       (15,379)       \$ (13)       602,061       \$ (380)       \$ (2,449)         Swaps       (52,061)       \$ (1,922)       (1,184)       (1,086)       \$ (1,922)         Total wap contracts       112,184       1,086       (515)       7         Inflation swap contracts       \$ 247,072       \$ 1,458       \$ 23,136       \$ 387         Liabilities       Interest r	Total Futures	\$ 189,228	\$	559	\$ 331,077	\$	(16,771)	\$ 53,287		
Purchased options Interest rate options       41,401       \$ 422       753,000       \$ 1,362         Credit default swap options       12,321       244       6.759       53         Total purchased option assets       63,532       \$ 669       767,959       \$ 1,542         Liabilities       Written options       (14,715)       (1)       (49,390)       (195)         Foreign currency options       (14,715)       (1)       (49,390)       (1952)         Total options       (15,379)       (13)       602,061       (380)       \$ (2,449)         Swaps       (15,1379)       (13)       602,061       \$ (380)       \$ (2,449)         Support total return swap contracts       112,184       1,086       (515)       7         Inflation swap contracts <td< td=""><td>Option contracts</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	Option contracts									
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Assets									
$\begin{array}{c c} Credit default swap options \\ \hline Poreign currency options \\ \hline 12,321 \\ \hline 244 \\ \hline 6,759 \\ \hline 53 \\ \hline 767,959 \\ \hline 53 \\ \hline 767,959 \\ \hline 51 \\ \hline 52 \\ \hline 53 \\ \hline 54 \\ \hline 54 \\ \hline 54 \\ \hline 54 \\ \hline 55 \\ \hline 55 \\ \hline 55 \\ \hline 55 \\ \hline 56 \\ \hline 767,959 \\ \hline 56 \\ \hline 57 \\ \hline 57 \\ 61 \\ \hline 57 \\ 61 \\ 61 \\ \hline 101 \\ $	Purchased options									
Foreign currency options       12,321       244 $6,759$ $53$ Total purchased option assets $63,532$ $5$ $669$ $767,959$ $5$ $1,542$ Liabilities       Written options $(43,901)$ $5$ $(599)$ $(101,800)$ $5$ $(1,652)$ Credit default swap options $(43,901)$ $5$ $(599)$ $(101,800)$ $5$ $(1,652)$ Prorign currency options $(43,901)$ $5$ $(599)$ $(101,800)$ $5$ $(1,652)$ Prorign currency options $(43,901)$ $5$ $(599)$ $(101,800)$ $5$ $(1,652)$ Inflation rate floor options $(12,000)$ $(51)$ $(13,900)$ $(14)$ Total written option liabilities $(15,379)$ $5$ $(13)$ $602,061$ $5$ $(380)$ $5$ $(2,449)$ Swaps       Assets $112,184$ $1,086$ $(515)$ $7$ $7$ $7$ $7$ $7$ $7$ $7$ $7$ $7$ $7$ $7$ $7$ $7$ $7$ $7$ $7$ $7$ $7$ $7$	Interest rate options	41,401	\$	422	753,000	\$	1,362			
Total purchased option assets       63,532       \$       669 $767,959$ \$ $1,542$ Liabilities       Written options       (43,901)       \$       (599)       (101,800)       \$       (1,652)         Credit default swap options       (14,715)       (1)       (49,390)       (195)         Foreign currency options       (14,715)       (1)       (49,390)       (14)         Total vritten option liabilities       (78,911)       \$       (682)       (165,898)       \$       (1,922)         Total Options       (15,379)       \$       (13)       602,061       \$       (380)       \$       (2,449)         Swaps       Assets       (165,1997)       \$       198       \$       6,168       \$       197         Inflation rates       \$       115,379)       \$       198       \$       6,168       \$       197         Total return swap contracts       \$       112,184       1,086       (515)       7       7         Inflation swap contracts       \$       24,7072       \$       1,458       387       387         Liabilities       Interest rate swap contracts       \$       90,946       \$       (2,328)       \$       361,	Credit default swap options	9,810		3						
Liabilities         Written options         Interest rate options         (14,715)         Gredit default swap options         (14,715)         Foreign currency options         (12,000)         (12,000)         (11,300)         (12,000)         (12,000)         (11,31)         (11,31)         (11,31)         (11,310)         (11,311)         (11,311)	V V									
Written options Interest rate options       (43,901) \$ (599) (14,715) (1)       (101,800) \$ (1,652) (149,390) (195)         Credit default swap options Foreign currency options       (14,715)       (1)       (49,390)       (195)         Foreign currency options Inflation rate floor options       (12,000)       (5)       (13,900)       (14)         Total written option liabilities       (78,911) \$ (682)       (165,898) \$ (1,922)       (12,449)         Swaps Assets       (15,379) \$ (13)       602,061 \$ (380)       \$ (2,449)         Swaps Assets       (112,184       1,086       (515)       7         Inflation swap contracts Total return swap contracts       112,184       1,086       (515)       7         Inflation swap contracts       18,891       174       15,438       131         Total swap contracts       18,891       174       15,438       131         Total swap contracts       \$ 20,946 \$ (2,328)       \$ 361,148 \$ (10,556)       167,587       10,031         Credit default swap contracts       \$ 90,946 \$ (2,328)       \$ 362,772 \$ (11,940)       \$ (14,940)         Total swap contracts       \$ 539,625 \$ (2,868)       \$ 405,908 \$ (11,553)       \$ (8,601)         Total swap contracts       \$ 539,625 \$ (2,868)       \$ 405,908 \$ (11,553)       \$ (8,60	Total purchased option assets	63,532	\$	669	767,959	\$	1,542			
Interest rate options $(43,901)$ \$ (599) $(101,800)$ \$ (1.652)Credit default swap options $(14,715)$ $(1)$ $(49,390)$ $(195)$ Foreign currency options $(12,000)$ $(5)$ $(13,900)$ $(14)$ Inflation rate floor options $(15,379)$ $(13)$ $(002,061)$ $(12,022)$ Total Options $(15,379)$ $(13)$ $(022,061)$ $(380)$ $$ (2,449)$ Swaps $(15,379)$ $$ (13)$ $(022,061)$ $$ (380)$ $$ (2,449)$ Swaps $112,184$ $1,086$ $(515)$ $7$ Inflation swap contracts $112,184$ $1,086$ $(515)$ $7$ Inflation swap contracts $18,891$ $174$ $15,438$ $131$ Total swap contracts $1,458$ $$ 23,136$ $$ 387$ LiabilitiesInterest rate swap contracts $1,67,587$ $(1,031)$ Total swap contracts $$ 90,946$ $$ (2,328)$ $$ 361,148$ $$ (10,556)$ Total swap contracts $$ 90,946$ $$ (2,328)$ $$ 361,148$ $$ (10,556)$ Total swap contracts $$ 90,946$ $$ (2,328)$ $$ 361,148$ $$ (10,940)$ Total swap contracts $$ 90,946$ $$ (2,328)$ $$ 361,148$ $$ (10,940)$ Total swap contracts $$ 90,946$ $$ (2,328)$ $$ 362,772$ $$ (11,940)$ Total swap contracts $$ 539,625$ $$ (2,868)$ $$ 405,908$ $$ (11,553)$ $$ (8,601)$ Total swap contracts $$ 539,625$ $$ (2,868)$ $$ 405,908$ $$ (11,553)$ $$ (8,601)$ <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>										
Credit default swap options $(14,715)$ $(1)$ $(49,390)$ $(195)$ Foreign currency options $(8,295)$ $(77)$ $(808)$ $(61)$ Inflation rate floor options $(12,000)$ $(15)$ $(13,900)$ $(14)$ Total written option liabilities $(78,911)$ \$ $(682)$ $(165,898)$ \$ $(1,922)$ Total options $(15,379)$ \$ $(13)$ $602,061$ \$ $(380)$ \$ $(2,449)$ Swaps       Assets       Interest rate swap contracts $112,184$ $1,086$ $(515)$ 7         Inflation swap contracts $112,184$ $1,086$ $(515)$ 7         Inflation swap contracts $18,891$ $174$ $15,438$ $131$ Total swap contracts $167,587$ $(1,031)$ $340,200$ $9671$ $21,624$ $(1,384)$ Total swap contracts $539,625$ $(2,868)$ $$ 3405,908$ $$ (11,553)$ $$ (8,601)$ Total swaps $$ 539,625$ $$ (2,868)$ $$ 405,908$ $$ (11,553)$ $$ (8,601)$ Total swaps $$ 539,625$ $$ (2,868$	•									
Foreign currency options $(8,295)$ $(77)$ $(808)$ $(61)$ Inflation rate floor options $(12,000)$ $(5)$ $(13,900)$ $(14)$ Total written option liabilities $(78,911)$ \$ $(682)$ $(165,898)$ \$ $(1,922)$ Total options $(15,379)$ \$ $(13)$ $602,061$ \$ $(380)$ \$ $(2,449)$ Swaps       Assets       Inflation swap contracts       \$ $115,997$ \$ $198$ \$ $6,168$ \$ $197$ Total return swap contracts $112,184$ $1,086$ $(515)$ 7         Inflation swap contracts $112,184$ $1,086$ $(515)$ 7         Inflation swap contracts $18,891$ $174$ $15,438$ $131$ Total swap contracts $18,891$ $174$ $15,438$ $131$ Total swap contracts $$ 90,946$ $$ (2,328)$ $$ 361,148$ $$ (10,556)$ Total swap contracts $$ 90,946$ $$ (2,328)$ $$ 361,148$ $$ (10,556)$ Total swap contracts $$ 90,946$ $$ (2,328)$ $$ 361,148$ $$ (10,556)$ Total swap contracts $$ 539,625$ $$ (2,868)$ <td>-</td> <td></td> <td></td> <td></td> <td>( , ,</td> <td>\$</td> <td></td> <td></td>	-				( , ,	\$				
$\begin{array}{c c c c c c c c c c c c c c c c c c c $							. ,			
Total written option liabilities       (78,911) \$ (682)       (165,898) \$ (1,922)         Total Options       (15,379) \$ (13)       602,061 \$ (380)       \$ (2,449)         Swaps       Assets       Interest rate swap contracts       \$ 115,997 \$ 198       \$ 6,168 \$ 197         Interest rate swap contracts       112,184       1,086       (515)       7         Inflation swap contracts       112,184       1,086       (515)       7         Inflation swap contracts       18,891       174       15,438       131         Total return swap contracts       90,946 \$ (2,328)       \$ 361,148 \$ (10,556)       387         Interest rate swap contracts       90,946 \$ (2,328)       \$ 361,148 \$ (10,556)       382,772 \$ (11,940)         Interest rate swap contracts       167,587 \$ (1,031)       21,624 \$ (1,384)       382,772 \$ (11,940)         Total swap contracts       539,625 \$ (2,868)       \$ 405,908 \$ (11,553)       \$ (8,601)         Forwards**       Forward foreign currency contracts - receivable       \$ 5,144       \$ 6,477         Forward foreign currency contracts - payable       (9,226)       (3,976)							. ,			
Total Options       (15,379)       \$ (13)       602,061       \$ (380)       \$ (2,449)         Swaps Assets       Interest rate swap contracts       \$ 115,997       \$ 198       \$ 6,168       \$ 197         Total return swap contracts       112,184       1,086       (515)       7         Inflation swap contracts       112,184       1,086       (515)       7         Inflation swap contracts       18,891       174       15,438       131         Total return swap contracts       18,891       174       15,438       131         Total swap contract assets       \$ 247,072       \$ 1,458       \$ 23,136       \$ 387         Liabilities       Interest rate swap contracts       \$ 90,946       \$ (2,328)       \$ 361,148       \$ (10,556)         Total return swap contracts       \$ 90,946       \$ (2,328)       \$ 361,148       \$ (10,556)         Total return swap contracts       \$ 292,553       \$ (4,326)       \$ 382,772       \$ (11,940)         Total swap contract liabilities       \$ 539,625       \$ (2,868)       \$ 405,908       \$ (11,553)       \$ (8,601)         Forwards**       Forward foreign currency contracts - receivable       \$ 5,144       \$ 6,477       \$ 6,477         Forward foreign currency contracts - payable       (						<i>.</i>				
Swaps Assets         Interest rate swap contracts       \$ 115,997       \$ 198       \$ 6,168       \$ 197         Total return swap contracts       112,184       1,086 $(515)$ 7         Inflation swap contracts       112,184       1,086 $(515)$ 7         Inflation swap contracts       18,891       174       15,438       131         Total swap contract assets       \$ 247,072       \$ 1,458       \$ 23,136       \$ 387         Liabilities       Interest rate swap contracts       \$ 90,946       \$ (2,328)       \$ 361,148       \$ (10,556)         Total return swap contracts       34,020       (967)       21,624       (1,384)         Total swap contract liabilities       \$ 292,553       \$ (4,326)       \$ 382,772       \$ (11,940)         Total swap contract liabilities       \$ 539,625       \$ (2,868)       \$ 405,908       \$ (11,553)       \$ (8,601)         Forwards**       Forwards foreign currency contracts - receivable       \$ 5,144       \$ 6,477         Forward foreign currency contracts - payable       (9,226)       (3,976)	Total written option liabilities	(78,911)	\$	(682)	(165,898)	\$	(1,922)			
Assets       Interest rate swap contracts       \$ 115,997       \$ 198       \$ 6,168       \$ 197         Total return swap contracts       112,184       1,086       (515)       7         Inflation swap contracts       112,184       1,086       (515)       7         Credit default swap contracts       18,891       174       15,438       131         Total swap contract assets       \$ 247,072       \$ 1,458       \$ 361,148       \$ (10,556)         Interest rate swap contracts       \$ 90,946       \$ (2,328)       \$ 361,148       \$ (10,556)         Total swap contracts       \$ 90,946       \$ (2,328)       \$ 361,148       \$ (10,556)         Total swap contracts       \$ 90,946       \$ (2,328)       \$ 361,148       \$ (10,556)         Total swap contracts       \$ 90,946       \$ (2,328)       \$ 361,148       \$ (10,556)         Total swap contracts       \$ 90,946       \$ (2,328)       \$ 361,148       \$ (11,940)         Total swap contracts       \$ 539,625       \$ (2,868)       \$ 405,908       \$ (11,553)       \$ (8,601)         Total Swaps       \$ 539,625       \$ (2,868)       \$ 405,908       \$ (11,553)       \$ (8,601)         Forwards**       Forward foreign currency contracts - receivable       \$ 5,144	Total Options	(15,379)	\$	(13)	602,061	\$	(380)	\$ (2,449)		
Interest rate swap contracts       \$ 115,997 \$ 198       \$ 6,168 \$ 197         Total return swap contracts       112,184       1,086       (515) 7         Inflation swap contracts       18,891       174       15,438       131         Total swap contract assets       \$ 247,072 \$ 1,458       \$ 23,136 \$ 387       387         Liabilities       Interest rate swap contracts       \$ 90,946 \$ (2,328)       \$ 361,148 \$ (10,556)         Total return swap contracts       \$ 90,946 \$ (2,328)       \$ 361,148 \$ (10,556)         Total return swap contracts       \$ 90,946 \$ (2,328)       \$ 361,148 \$ (10,556)         Total return swap contracts       \$ 90,946 \$ (2,328)       \$ 361,148 \$ (10,556)         Total swap contracts       \$ 90,946 \$ (2,328)       \$ 361,148 \$ (10,556)         Total swap contracts       \$ 292,553 \$ (4,326)       \$ 382,772 \$ (11,940)         Total Swaps       \$ 539,625 \$ (2,868)       \$ 405,908 \$ (11,553)       \$ (8,601)         Forwards**       Forward foreign currency contracts - receivable       \$ 5,144       \$ 6,477         Forward foreign currency contracts - payable       (9,226)       (3,976)       (3,976)	Swaps									
Total return swap contracts       112,184       1,086 $(515)$ 7         Inflation swap contracts       18,891       174       15,438       131         Total swap contract assets       \$ 247,072       \$ 1,458       \$ 387         Liabilities       Interest rate swap contracts       \$ 90,946       \$ (2,328)       \$ 361,148       \$ (10,556)         Total return swap contracts       \$ 90,946       \$ (2,328)       \$ 361,148       \$ (10,556)         Total return swap contracts       \$ 90,946       \$ (2,328)       \$ 361,148       \$ (10,556)         Total return swap contracts       \$ 90,946       \$ (2,328)       \$ 361,148       \$ (10,556)         Total return swap contracts       \$ 90,946       \$ (2,328)       \$ 361,148       \$ (10,556)         Total swap contracts       \$ 90,946       \$ (2,328)       \$ 361,148       \$ (10,556)         Total swap contracts       \$ 929,553       \$ (4,326)       \$ 382,772       \$ (11,940)         Total Swaps       \$ 539,625       \$ (2,868)       \$ 405,908       \$ (11,553)       \$ (8,601)         Forwards**       Forward foreign currency contracts - receivable       \$ 5,144       \$ 6,477       \$ 6,477         Forward foreign currency contracts - payable       (9,226)       (3,976)										
Inflation swap contracts $2,045$ $52$ Gredit default swap contracts $18,891$ $174$ $15,438$ $131$ Total swap contract assets $$247,072$ $$1,458$ $$$23,136$ $$387$ Liabilities       Interest rate swap contracts $$90,946$ $$(2,328)$ $$361,148$ $$(10,556)$ Total return swap contracts $$167,587$ $(1,031)$ $$21,624$ $(1,384)$ Total swap contracts $$34,020$ $(967)$ $$21,624$ $(1,384)$ Total swap contract liabilities $$$539,625$ $$(2,868)$ $$$405,908$ $$(11,940)$ Total Swaps $$$539,625$ $$(2,868)$ $$$405,908$ $$(11,553)$ $$$(8,601)$ Forwards** $$$contracts - receivable$ $$$5,144$ $$$6,477$ Forward foreign currency contracts - payable $(9,226)$ $(3,976)$	•		\$		. ,					
Credit default swap contracts       18,891       174       15,438       131         Total swap contract assets       \$ 247,072       \$ 1,458       \$ 23,136       \$ 387         Liabilities       Interest rate swap contracts       \$ 90,946       \$ (2,328)       \$ 361,148       \$ (10,556)         Total return swap contracts $167,587$ $(1,031)$ $21,624$ $(1,384)$ Credit default swap contracts $34,020$ $(967)$ $21,624$ $(1,384)$ Total swap contract $34,020$ $(967)$ $21,624$ $(11,940)$ Total swap contract $$ 539,625$ $$ (2,868)$ $$ 405,908$ $$ (11,553)$ $$ (8,601)$ Forwards**       Forward foreign currency contracts - receivable $$ 5,144$ $$ 6,477$ Forward foreign currency contracts - payable $(9,226)$ $(3,976)$	-	112,184		1,086						
Total swap contract assets       \$ 247,072       \$ 1,458       \$ 23,136       \$ 387         Liabilities       Interest rate swap contracts       \$ 90,946       \$ (2,328)       \$ 361,148       \$ (10,556)         Total return swap contracts       167,587       (1,031)       21,624       (1,384)         Credit default swap contracts       34,020       (967)       21,624       (1,384)         Total swap contract liabilities       \$ 292,553       \$ (4,326)       \$ 382,772       \$ (11,940)         Total Swaps       \$ 539,625       \$ (2,868)       \$ 405,908       \$ (11,553)       \$ (8,601)         Forwards***       Forward foreign currency contracts - receivable       \$ 5,144       \$ 6,477         Forward foreign currency contracts - payable       (9,226)       (3,976)	-	10.004								
Liabilities         Interest rate swap contracts         Total return swap contracts         Total swap contracts         Total swap contracts         Total swap contracts         S 292,553 \$         S 405,908 \$         S 6,477         Forward foreign currency         contracts - payable         (9,226)       (3,976) <td></td> <td></td> <td><i>c</i></td> <td></td> <td></td> <td>¢.</td> <td></td> <td></td>			<i>c</i>			¢.				
Interest rate swap contracts       \$ 90,946       \$ (2,328)       \$ 361,148       \$ (10,556)         Total return swap contracts       167,587       (1,031)       21,624       (1,384)         Total swap contract       34,020       (967)       21,624       (1,384)         Total swap contract liabilities       \$ 292,553       \$ (4,326)       \$ 382,772       \$ (11,940)         Total Swaps       \$ 539,625       \$ (2,868)       \$ 405,908       \$ (11,553)       \$ (8,601)         Forwards**       Forwards**       \$ 5,144       \$ 6,477         Forward foreign currency contracts - receivable       \$ 5,144       \$ 6,477         Forward foreign currency contracts - payable       (9,226)       (3,976)	l otal swap contract assets	\$ 247,072	\$	1,458	\$ 23,136	\$	387			
Total return swap contracts       167,587       (1,031)         Credit default swap contracts       34,020       (967)       21,624       (1,384)         Total swap contract liabilities       \$ 292,553       \$ (4,326)       \$ 382,772       \$ (11,940)         Total Swaps       \$ 539,625       \$ (2,868)       \$ 405,908       \$ (11,553)       \$ (8,601)         Forwards**       Forwards**       Forward foreign currency contracts - receivable       \$ 5,144       \$ 6,477         Forward foreign currency contracts - payable       (9,226)       (3,976)       (3,976)	Liabilities									
Credit default swap contracts       34,020       (967)       21,624       (1,384)         Total swap contract liabilities       \$ 292,553       \$ (4,326)       \$ 382,772       \$ (11,940)         Total Swaps       \$ 539,625       \$ (2,868)       \$ 405,908       \$ (11,553)       \$ (8,601)         Forwards**       Forwards foreign currency contracts - receivable       \$ 5,144       \$ 6,477         Forward foreign currency contracts - payable       (9,226)       (3,976)	Interest rate swap contracts		\$		\$ 361,148	\$	(10,556)			
Total swap contract liabilities       \$ 292,553       \$ (4,326)       \$ 382,772       \$ (11,940)         Total Swaps       \$ 539,625       \$ (2,868)       \$ 405,908       \$ (11,553)       \$ (8,601)         Forwards**       Forward foreign currency contracts - receivable       \$ 5,144       \$ 6,477         Forward foreign currency contracts - payable       (9,226)       (3,976)				(1,031)						
Total Swaps\$ 539,625 \$ (2,868)\$ 405,908 \$ (11,553)\$ (8,601)Forwards** Forward foreign currency contracts - receivable\$ 5,144\$ 6,477Forward foreign currency contracts - payable(9,226)(3,976)										
Forwards**Forward foreign currency contracts - receivable\$ 5,144\$ 6,477Forward foreign currency contracts - payable(9,226)(3,976)	Total swap contract liabilities	\$ 292,553	\$	(4,326)	\$ 382,772	\$	(11,940)			
Forward foreign currency contracts - receivable\$ 5,144\$ 6,477Forward foreign currency contracts - payable(9,226)(3,976)	Total Swaps	\$ 539,625	\$	(2,868)	\$ 405,908	\$	(11,553)	\$ (8,601)		
Forward foreign currency contracts - receivable\$ 5,144\$ 6,477Forward foreign currency contracts - payable(9,226)(3,976)	Forwards <sup>**</sup>									
contracts - receivable\$ 5,144\$ 6,477Forward foreign currency contracts - payable(9,226)(3,976)										
contracts - payable         (9,226)         (3,976)	8		\$	5,144		\$	6,477			
	Forward foreign currency									
Total Forwards         \$ (4,082)         \$ 2,501         \$ (5,507)	contracts - payable			(9,226)			(3,976)			
	Total Forwards		\$	(4,082)		\$	2,501	\$ (5,507)		

\* Reflects number of contracts for options (in thousands)

\*\* Number of forward foreign currency contracts outstanding as of September 30, 2016 and September 30, 2015 were 458 and 329, respectively

### Note 4 SECURITIES LENDING

The System has engaged its Master Trustee, the Bank of New York Mellon, to administer a securities lending program under which certain eligible securities of the System are loaned out in exchange for acceptable collateral with an approved borrower for a fee. Loans are secured by collateral at least equal to 102 percent of the fair value of the securities loaned for securities of United States issuers denominated in United States dollars. The required collateral percentage is also 102 percent for loans of securities of non-United States issuers for which the collateral is denominated in the same currency as the loaned securities. The required collateral percentage is 105 percent for the loan of securities of non-United States issuers for which the collateral is not denominated in the same currency as the loaned securities. The System generally receives cash as collateral for securities lending, but it may also receive investment grade securities or interest in triparty accounts containing investment grade securities. The cash collateral received for securities lending is recorded both as an asset and a liability in the Statement of Net Assets Available for Benefits. Cash received is invested in a separately managed account which holds various short-term investments. The account is managed by Mellon Global Securities Services (MGSS), which is limited to investment activities incidental to, or in support of, the securities lending program organized and managed by MGSS. The System does not have the right to sell or repledge securities or interest in tri-party accounts received as collateral. The System receives a portion of the income earned on the collateral and also continues to earn income on the loaned securities. Any gain or loss in the market price of the securities loaned that may occur during the term of the loan will be for the account of the System. The lending agent provides the System with indemnification against losses due to borrower default. The System bears the risk of loss only with respect to the investment of any cash collateral. A summary of securities currently out on loan and the related collateral is provided below.

#### SECURITIES LENDING

As of September 30, 2016 and 2015, the System loaned securities having a fair value of approximately \$2.4 million and received \$2.5 million of collateral in the form of cash.

(Dollars in thousands) September 30, 2016	Fair Value of Securities on Loan		Total Collateral		Collateral Percent*	Fair Value of Collateral - Cash	
Corporate bonds	\$	995	\$	1,017	102.3%	\$	1,017
Common stocks - domestic	\$	1,279	\$	1,315	102.8%	\$	1,315
Common stocks - international	159 168		168	105.2%	168		
	\$	2,433	\$	2,500	102.8%	\$	2,500
September 30, 2015							
Corporate bonds	\$	1,464	\$	1,499	102.4%	\$	1,499
Common stocks - domestic		920		944	102.7%		944
Common stocks - international		48		51	105.2%		51
US Government		16		16	102.0%		16
1	\$	2,448	\$	2,510	102.5%	\$	2,510

The following tables summarize the securities loaned and the related collateral:

\*Calculated on unrounded amounts

## Note 5 COMMITMENTS AND CONTINGENCIES

The System has made commitments to various limited partnerships and private real estate investments. A summary is provided below.

	2016			2015					
(Dollars in thousands)	Number of Funds	Fair Market Value	Unfund Commitm		Number of Funds	Fa	ir Market Value	-	nfunded nmitments
Private Equity Funds	24	\$ 383,414		3,421	23	\$		\$	64.704
Private Real Estate Funds	13	\$    505,414 \$   575,297		,,+21 8,097	12	\$	571,768	-	89,020

### Note 6 MEMBER CONTRIBUTIONS

Eligible members may voluntarily contribute to either the Fixed Fund, the Variable Fund, or both. Contributions to the Fixed Fund and/or the Variable Fund are limited by the System Rules to the lesser of \$10,000 per calendar year or 100 percent of calendar year-to-date compensation. Federal income tax is deferred on earnings until annuity payments start or withdrawals are made. Members are also permitted to transfer their contributions between the Fixed Fund and the Variable Fund once per calendar month and may, at any time during employment, transfer their entire balance to the 401(k) Plan. Members who transfer their balance to the 401(k) Plan on or after May 1, 2005, are no longer eligible to contribute to the Fixed Fund or the Variable Fund. Upon retirement, those who first became members before January 1, 1996, may transfer all or any portion of their after-tax account in the 401(k) Plan to the Fixed Fund and/or Variable Fund to receive monthly annuity payments.

### Note 7 EMPLOYER CONTRIBUTIONS

TVA contributes to the System such amounts as are necessary on an actuarial basis to provide the System with assets sufficient to meet TVA-funded benefit obligations to be paid to members. In 2016 and 2015, TVA made \$275 million contributions to the System. In August 2016, the TVA Board of Directors (TVA Board) approved a \$300 million contribution to the System for 2017.

The funding method for the System is established solely under the System Rules. For 2016, the minimum required funding method called for TVA's rate of contribution to be not less than the sum of the normal contribution (the long-term annual weighted average cost of benefits excluding cost-of-living adjustments [COLAs]), the accrued liability contribution (an amortized portion of the System's deficit or surplus based on the value of benefits excluding COLAs), and a cost-of-living contribution (an amount to fund COLAs paid during the year) with an offset equal to a portion of an "excess COLA account" (based on contributions made by TVA for past years in excess of the minimum required under the System Rules).

TVA's contribution rate for a fiscal year may be reduced or eliminated, upon the System Board's recommendation, if the market value of the System's assets exceeds the present value of accrued plan benefits on the System's last valuation date.

## Note 8 AMENDMENTS TO THE SYSTEM RULES AND REGULATIONS

On August 8, 2016, the System Board approved amendments to the System Rules, and these amendments were also approved by the TVA Board on August 25, 2016. The amendments, which became effective on October 1, 2016, change future retirement benefits for members and retirees and make certain other changes regarding TVA's minimum funding requirements to the System and System governance. With respect to current Cash Balance Benefit Structure (CBBS) members, these amendments shift future benefit accruals for certain members from the cash balance pension to the 401(k) Plan based on hire date and years of service as of October 1, 2016. For CBBS members first hired on or after January 1, 1996, and having more than 10 years of service as of October 1, 2016, members will begin receiving nonelective contributions to their accounts in the 401(k) Plan and reduced pay credits to their cash balance accounts in the pension plan. For CBBS members first hired on or after January 1, 1996, and having contributions to their accounts in the 401(k) Plan and reduced pay credits to their cash balance accounts in the pension plan. For CBBS members first hired on or after January 1, 1996, and having contributions to their accounts in the 401(k) Plan and reduced pay credits to their cash balance accounts in the pension plan. For CBBS members first hired on or after January 1, 1996, and having less than 10 years of service as of October 1, 2016, members will begin receiving nonelective contributions to their accounts in the 401(k) Plan and will no longer receive pay credits to their cash balance accounts; however, their cash balance accounts will continue to receive interest credits.

The amendments also made the following additional benefit changes: reducing the future cash balance interest crediting rate and the Fixed Fund interest rate with a floor and ceiling based on the assumed rate of investment return on System assets; closing the Fixed and Variable Funds to new contributions from members first hired on or after January 1, 1996; reducing the rate of future COLAs while increasing the maximum eligible COLA; vesting COLAs; increasing the eligibility age for COLAs for members under age 50; restricting COLAs to pension amounts based on compensation up to Executive Level IV; eliminating future COLAs to members in TVA's Supplemental Executive Retirement Plan with less than 10 years of service; and capping the maximum supplemental benefit amounts.

The amendments also changed the annual minimum contribution required by TVA to the System to the greater of (a) the minimum contribution calculated by System's actuary according to the System Rules as described in Note 7 above, or (b) \$300 million, for a period of 20 years (from 2017 through 2036) or, if earlier, through the fiscal year in which the System reaches and remains at a 100 percent funded status under the actuarial rules applicable to the System.

### Note 9 ACTUARIAL ASSUMPTIONS

Accumulated benefits are those future periodic payments, including single-sum payments, that are attributable under the System to the service members have rendered and contributions members have made. Accumulated benefits include benefits expected to be paid to (1) retired or terminated members or to their beneficiaries, (2) beneficiaries of members who have died, and (3) current members or their beneficiaries.

Pension benefits under the System's Original Benefit Structure (OBS) are based on members' years (to the nearest month) of creditable service, highest average compensation during any three consecutive years of creditable service, and a pension factor, less a Social Security offset. Calculations of the accumulated pension benefits for active employees are based on their average compensation during the last three years ending on the valuation date.

Pension benefits under the System's CBBS are based on pay credits and interest credits that accumulate over the members' cash balance service. Pay credits accumulate at a rate equal to 6 percent of members' compensation, and interest is credited each month at the rate established by the System Board each January 1. The interest rate is determined by calculating the percentage change of the 12-month average of the CPI-U

for the period ending the previous October 31 over the preceding 12-month period, plus 3 percent. The System has established a minimum annual interest rate of 6 percent and a maximum annual interest rate of 10 percent for interest credits. The interest rate was 6 percent for calendar years 2016 and 2015. Benefits payable under all circumstances – retirement, death, disability, and termination of employment – are included to the extent they are deemed attributable to members' service rendered to the valuation date.

The actuarial present value of accumulated benefits is determined by the System's actuary, Mercer Human Resource Consulting, and is the amount that results from applying actuarial assumptions to adjust the accumulated benefits to reflect the time value of money (through discounts for interest) and the probability of payment (by means of decrements such as for death, disability, withdrawals or retirement) between the valuation date and the expected date of payment. The significant actuarial assumptions used in the valuations as of September 30, 2016 and 2015, were:

- A. Life expectancy of participants the MRP-2007 Mortality table with a 5% load and MSS-2016 Mercer improvement scale for 2016 and the MRP-2007 Mortality tale with a 5% load and MSS-2007 Mercer improvement scale for 2015.
- B. Interest rate 6.75 percent for 2016 and 7.00 percent for 2015.
- C. Retiree cost-of-living increases 2.00 percent annually for 2016 and 2.25 percent for 2015.
- D. Annual rates of retirements the assumptions for 2016 and 2015 were:

	Annual Rates of
Attained Age	Retirement
45-49	2%
50-54	6%
55	15%
56-59	12.5%
60-61	20%
62	30%
63-64	25%
65	30%
66-69	25%
70	100%

The foregoing actuarial assumptions are based on the presumption that the System will continue. If the System were terminated, different actuarial assumptions and other factors might be applicable in determining the actuarial present value of accumulated benefits.

### **Accumulated Benefits**

The estimated actuarial present value of accumulated benefits for the System is as follows:

	Septem	ber 30
(Dollars in thousands)	2016	2015
Vested benefits		
Participants currently receiving benefits	\$7,762,700	\$7,794,800
Active participants	1,729,300	1,765,700
Deferred benefit participants	81,500	77,800
Total	9,573,500	9,638,300
Nonvested benefits	42,200	47,000
Total estimated actuarial present value of accumulated benefits payable from the Fixed Benefit Fund	<u>\$ 9,615,700</u>	<u> </u>

The calculations presented in this section are solely for purposes of fulfilling plan accounting and reporting requirements in accordance with the *Plan Accounting - Defined Benefit Plans* topic of the Financial Accounting Standards Board codification.

The changes in the estimated actuarial present value of accumulated benefits of the System are as follows:

	September 30				
(Dollars in thousands)	2016	2015			
Actuarial present value of accumulated benefits payable from the Fixed Benefit Fund at beginning of year	\$ 9,685,300	\$ 9,617,100			
Increase during the year attributable to:					
Additional benefits accumulated and actuarial gains and losses Interest due to decrease in the	93,600	141,000			
discount period	653,800	649,100			
Benefits paid to participants	(690,400)	(688,500)			
Change in assumptions	211,200	(33,400)			
Change in plan provisions	(337,800)				
Actuarial present value of accumulated benefits payable from the Fixed Benefit Fund at end of year	<u>\$ 9,615,700</u>	\$ 9,685,300			

## Note 10 ADMINISTRATIVE EXPENSES AND RELATED PARTY TRANSACTIONS

The System's assets are used to pay for all eligible System administrative expenses.

The System staff are TVA employees, and the System utilizes other TVA resources in the administration of the System. The System reimburses TVA for expenses incurred on behalf of the System. The System paid TVA \$3.8 million in 2016 and \$3.6 million in 2015.

### Note 11 TERMINATION

Under the System Rules, TVA has the right at any time in its discretion to terminate the System. No such termination of the System will affect the obligations of TVA with regards to members' nonforfeitable rights to accrued benefits as set out in the System Rules. In the event the System is terminated, the net assets of the System will be allocated generally to provide System benefits in the following order: (1) Fixed and Variable Fund benefits based on members' contributions, (2) nonforfeitable benefits based upon TVA's contributions, and (3) COLA benefits. The System benefits are not guaranteed by the Pension Benefit Guaranty Corporation; however, under the System Rules, TVA is responsible in a termination situation for funding any shortfall in assets necessary to pay nonforfeitable benefits and could fund such shortfall in a single lump-sum or in installments over a reasonable period of time.

### Note 12 VARIABLE FUND

A general description of the Variable Fund is found under "Plan Summary - Fixed and Variable Funds" at the beginning of this Annual Report.

Key financial data of the Variable Fund at September 30, 2016 and 2015 are as follows:

(Dollars in thousands)	2016	2015		
Assets				
Commingled funds	\$ 85,945	\$	83,579	
S&P 500 Stock Index Fund	 46,607		47,623	
Total investments at fair value	132,552		131,202	
Net receivable from the Fixed Benefit Fund	1			
Due from broker				
Liabilities				
Net payable to the Fixed Benefit Fund	276		1	
NetAssets	\$ 132,277	\$	131,201	
Investment Income Net appreciation (depreciation) in fair value of investments Dividends Total investment income	\$ 18,019 1,135 19,154	\$	(1,347) <u>1,458</u> 111	
Members' Contributions	 1,603		1,870	
Net Transfers for:				
Retirement benefits, withdrawals and death benefits	10,683		11,735	
Net transfers to Fixed Benefit Fund	8,840		8,902	
Net transfers to 401(k) Plan	 158		171	
Net transfers	 19,681		20,808	
Net increase (decrease)	\$ 1,076	\$	(18,827)	

### Note 13 PENDING LITIGATION

In March 2010, a group of eight current and retired members and beneficiaries of the System filed a complaint asserting a purported class-action lawsuit against the six then-current members of the System Board concerning the amendments to the System Rules that became effective January 1, 2010. In September 2010, the United States District Court for the Middle District of Tennessee (the Court) dismissed the complaint, after which the plaintiffs filed an amended complaint against the System and TVA challenging the amendments. These amendments (1) suspended the TVA contribution requirements for fiscal years 2010 through 2013, (2) reduced the calculation for COLAs for calendar years 2010 through 2013, (3) reduced the interest crediting rate for the Fixed Fund accounts, and (4) increased the eligibility age to receive COLAs from age 55 to 60. In August 2015, the Court granted TVA's motion for summary judgment and dismissed the case with prejudice. The plaintiffs appealed that decision to the United States Court of Appeals for the Sixth Circuit (the Sixth Circuit). On August 12, 2016, the Sixth Circuit held that the plaintiffs' rights were not violated because COLAs are not vested benefits, and remanded a few other issues to the Court for further proceedings. On March 3, 2017, the Court entered judgment in favor of the System and TVA on all remanded issues and dismissed the case with prejudice. Plaintiffs filed a notice of appeal to the Sixth Circuit on March 31, 2017.

The System has retained Bradley Arant Boult Cummings LLP to represent it in the lawsuit. The System has incurred legal fees concerning the litigation of \$287 thousand in 2016 and \$266 thousand in 2015. Loss contingencies, including claims and legal actions, are recorded as liabilities when the likelihood of loss is probable and an amount or range of probable loss can be reasonably estimated. System management has not concluded that any loss is probable as of September 30, 2016.

# Note 14 SUBSEQUENT EVENTS

System management has evaluated subsequent events for recognition and disclosure through April 18, 2017, which is the date the financial statements were available to be issued.

On August 8, 2016, the System Board approved amendments to the System Rules, and these amendments were also approved by the TVA Board on August 25, 2016. The amendments, which became effective on October 1, 2016, change future retirement benefits for members and retirees and make certain other changes regarding TVA's minimum funding requirements to the System and System governance. See Note 8, Amendments to the System Rules, for additional information.



#### INDEPENDENT AUDITOR'S REPORT

Members and Administrator of Tennessee Valley Authority Savings and Deferral Retirement Plan Knoxville, Tennessee

#### **Report on the Financial Statements**

We have audited the accompanying financial statements of the Tennessee Valley Authority Savings and Deferral Retirement Plan (Plan), which comprise the statements of net assets available for benefits as of September 30, 2016 and 2015, and the related statements of changes in net assets available for benefits for the years then ended, and the related notes to the financial statements.

#### Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

#### Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the Plan's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Plan's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

#### Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the net assets available for benefits of the Tennessee Valley Authority Savings and Deferral Retirement Plan as of September 30, 2016 and 2015, and the changes in net assets available for benefits for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Crowe Howath ZYP

Crowe Horwath LLP

South Bend, Indiana April 18, 2017

# Tennessee Valley Authority Savings and Deferral Retirement Plan

# **Statements of Net Assets Available for Benefits**

September 30, 2016 and 2015		
(Dollars in thousands)	2016	2015
Assets		
Investments at fair value	\$ 2,036,321	\$ 1,932,143
Other Receivables	59	573
Notes Receivable		
Participant Loans	41,976	39,261
Total Assets	\$ 2,078,356	\$ 1,971,977
Liabilities		
Accounts Payable	 176	-
Net Assets Available for Benefits	\$ 2,078,180	\$ 1,971,977

The accompanying notes are an integral part of the financial statements.

# Tennessee Valley Authority Savings and Deferral Retirement Plan

## Statements of Changes in Net Assets Available for Benefits

Fiscal Years Ended September 30, 2016 and 2015					
(Dollars in thousands)	2016	2015			
Investment Income (Loss)					
Net appreciation (depreciation)	\$ 100,779	\$ (125,968)			
Dividends and interest	66,716	99,741			
Total Investment Income (Loss)	167,495	(26,227)			
Contributions					
Members	91,921	90,374			
TVA	38,393	36,181			
Transfers from annuity funds	7,434	9,694			
Total Contributions	137,748	136,249			
Other Income					
Revenue Credit	1,419	2,500			
Benefits, Withdrawals, and Transfers					
Benefits and withdrawals	(195,008)	(156,498)			
Transfers to annuity funds	(5,215)	(11,393)			
Administrative Expenses-Consultant and Audit Fees	(236)	(444)			
Total Benefits, Withdrawals, and Transfers	(200,459)	(168,335)			
Net increase (decrease)	106,203	(55,813)			
Net Assets Available for Benefits					
Beginning of year	1,971,977	2,027,790			
End of year	\$ 2,078,180	\$ 1,971,977			
	 - / - / / -				

Fiscal Years Ended September 30, 2016 and 2015

The accompanying notes are an integral part of the financial statements.

# **Notes to Financial Statements**

### Note 1 GENERAL PLAN DESCRIPTION

The Tennessee Valley Authority Savings and Deferral Retirement Plan (401(k) Plan) is a defined contribution plan for members of the TVA Retirement System (System) funded by members' salary deferrals (either before-tax or Roth designated) and members' after-tax contributions. Additionally, members may receive employer matching and non-elective contributions provided by the Tennessee Valley Authority (TVA). During employment, members are also permitted to roll over funds from certain other qualified retirement plans and IRAs into the 401(k) Plan. Eligible members who do not elect to opt out are automatically enrolled as participants in the 401(k) Plan upon employment with salary deferrals of six percent (6%) of eligible compensation. The 401(k) Plan is governed by the Provisions of the Tennessee Valley Authority Savings and Deferral Retirement Plan (401(k) Plan Provisions). Members and retirees should refer to the 401(k) Plan Provisions for complete information.

The 401(k) Plan is sponsored by TVA and administered by the System Board of Directors (System Board). Fidelity Management Trust Company serves as the 401(k) Plan trustee and Fidelity Workplace Services LLC serves as the provider of recordkeeping services.

#### **TVA Contributions**

The contributions for which System members participating in the 401(k) Plan are eligible are set forth in the 401(k) Plan Provisions.

Members who were first hired prior to January 1, 1996, and who did not elect to switch pension structures, are in the System's Original Benefit Structure (OBS). OBS members receive matching contributions from TVA of 25 cents on every dollar contributed by the member to the 401(k) Plan up to a maximum of 1.5 percent of eligible compensation.

Members (i) who were first hired prior to January 1, 1996, and elected to switch pension structures, and (ii) who were first hired on or after January 1, 1996, and prior to July 1, 2014, are in the System's Cash Balance Benefit Structure (CBBS). CBBS members receive matching contributions from TVA of 75 cents on every dollar contributed by the member to the 401(k) Plan up to a maximum of 4.5 percent of eligible compensation.

Members (i) who are first hired on or after July 1, 2014, or (ii) who are rehired and become members of the System again on or after July 1, 2014, and were previously not vested or previously received their pension benefit in a lump-sum distribution, receive a retirement benefit in the 401(k) Plan only. These members receive the following 401(k) Plan benefit: (1) an automatic, non-elective contribution from TVA equal to 4.5 percent of eligible compensation, and (2) matching contributions from TVA of 75 cents on every dollar contributed by the member to the 401(k) Plan up to a maximum of 4.5 percent of eligible compensation.

#### **Member Contributions**

Salary deferrals (before-tax and/or Roth designated) are made through bi-weekly payroll deductions only. A participant may increase, decrease, transfer, or stop these contributions at any time.

After-tax contributions, subject to certain limitations, may be made by payroll deductions or cash payment into the 401(k) Plan. A participant may increase, decrease, transfer, or stop contributions at any time. Also, participants are permitted to transfer their money in the Fixed Fund and Variable Fund from the System into

the 401(k) Plan, which are classified as Transfers from Annuity Funds on the Statement of Changes in Net Assets Available for Benefits. For a general description of the Fixed and Variable Funds, see "Plan Summary - Fixed and Variable Funds" at the beginning of this Annual Report.

#### **Contribution Limits**

For calendar years 2016 and 2015, contributions by System members to the System's Fixed and Variable Funds, and 401(k) Plan, including TVA matching contributions and TVA automatic, non-elective contributions, could not exceed the lesser of \$53,000 or 100 percent of calendar year-to-date compensation. Additionally, before-tax and/or designated Roth contributions to the 401(k) Plan could not exceed the annually published maximum (\$18,000 for 2016 and 2015) by the Internal Revenue Service (IRS). Members who were age 50 or older were allowed to make additional before-tax and/or designated Roth contributions, allowing them to "catch up" on their retirement savings. For 2016 and 2015, the maximum catch-up contribution amount was \$6,000 over and above contribution limits and could not begin until the before-tax and/or designated Roth contribution limit was reached. These IRS limits may increase annually according to the IRS cost-of-living adjustment rules.

#### Vesting

Members who contribute to the 401(k) Plan are immediately vested in their own contributions and become vested in TVA matching and non-elective contributions upon completion of three years of TVA service. Upon completion of this service requirement, a member may withdraw matching and non-elective contributions only upon retirement, disability, or termination of TVA employment. Upon death, matching and non-elective contributions may be withdrawn without regard to the vesting requirement.

#### **Fund Lineup**

During 2015, the System Board worked with its 401(k) Plan consultant, Aon Hewitt Investment Consulting, to evaluate the investment lineup and structure. As a result, a new investment lineup was added to the 401(k) Plan in February 2016, with the conversion to the new lineup being completed in April 2016. The new lineup includes a reduced number of funds within the following four-tier structure: Tier 1 – Target Date Funds; Tier 2 – Passively Managed Funds; Tier 3 – Actively Managed Funds; and Tier 4 – Self-Directed Brokerage Account.

The Target Date Funds, called Target Retirement Portfolios, are managed by BlackRock and serve as the qualified default investment alternative for participants. The Target Retirement Portfolios provide a simple and efficient way for participants to create a diversified asset allocation with prudent risk and return characteristics based on their target retirement date and managed to gradually become more conservative over time. The current Target Retirement Portfolios managed by BlackRock are as follows: Target Retirement Income Portfolio, 2020 Target Retirement Portfolio, 2025 Target Retirement Portfolio, 2030 Target Retirement Portfolio, 2040 Target Retirement Portfolio, 2045 Target Retirement Portfolio, 2055 Target Retirement Portfolio, and 2060 Target Retirement Portfolio.

The Passively Managed Funds include the following 4 broad market index funds: BlackRock U.S. Debt Index Fund M (fixed income); BlackRock Equity Index Fund M (U.S. large cap equity); BlackRock Russell® 2500 Index Fund M (U.S. small/mid cap equity); and BlackRock MSCI ACWI ex-U.S. IMI Index Fund M (international equity).

The Actively Managed Funds include the following 9 funds: Vanguard Prime Money Market Fund Admiral Shares (money market); Fidelity Managed Income Portfolio II CI3 (stable value fund); Loomis Sayles Core Plus Fixed Income Fund (fixed income); BlackRock Strategic Completion Non-Lendable Fund M (real assets composed of REITs, TIPS and commodities); T. Rowe Price Institutional Large Cap Value Fund (U.S. large cap value equity); Fidelity Growth Company CIT (U.S. large cap growth equity); DFA U.S. Targeted Value Portfolio Institutional Class (U.S. small/mid cap value equity); William Blair Small-Mid Cap Growth Collective Investment Fund (U.S. small/mid cap growth equity); and Harding Loevner International Equity Collective Investment Fund (international equity).

#### Forfeitures

If a participant ceases to be an employee for any reason other than death prior to completing three years of TVA service, the entire amount of that participant's matching and non-elective contributions account is forfeited as of the termination date. Forfeitures are used to reduce TVA's matching contributions to the 401(k) Plan and for 401(k) Plan administrative expenses. The amount of forfeitures used to reduce TVA's matching contributions totaled \$434 thousand in 2016 and \$274 thousand in 2015. The amount of forfeitures used for administrative expenses totaled \$164 thousand in 2016 and \$233 thousand in 2015.

#### Termination

Under the 401(k) Plan Provisions, TVA has the right at any time in its discretion to terminate the 401(k) Plan. In the event the 401(k) Plan is terminated: (1) any unvested matching contributions in participant accounts will become vested, (2) the net assets will be distributed to participants in proportion to their respective accounts in the 401(k) Plan, and (3) payment of nonforfeitable benefits based on contributions and gains and losses thereon to participants' accounts will be assured.

# Note 2 SIGNIFICANT ACCOUNTING POLICIES

#### **Basis of Accounting**

The Financial Statements are prepared on the accrual basis of accounting. Benefits are recognized at the time of payment.

#### **Investment Valuation and Income Recognition**

The 401(k) Plan's investments are reported at fair value. Purchases and sales of securities are recorded on a trade date basis. Interest income is recorded on the accrual basis. Dividends are recorded on the ex-dividend date. Net appreciation (depreciation) includes the 401(k) Plan's gains and losses on investments bought and sold as well as held during the year.

Fair value is viewed as the price that would be received by the 401(k) Plan for an asset or paid by the 401(k) Plan to transfer a liability (an exit price) in an orderly transaction between market participants on the measurement date in the 401(k) Plan's principal or most advantageous market for the asset or the liability. There is a fair value hierarchy which maximizes the use of observable inputs and minimizes the use of unobservable inputs when measuring fair value. The hierarchy places the highest priority on unadjusted quoted market prices in active markets for identical assets or liabilities (Level 1 inputs) and gives the lowest priority to unobservable inputs (Level 3 inputs). The three levels of inputs within the fair value hierarchy are defined as follows:

Level 1 Inputs: Quoted prices (unadjusted) for identical assets in active markets that the 401(k) Plan has the ability to access at the measurement date.

Level 2 Inputs: Significant observable inputs other than Level 1, such as quoted prices for similar assets or liabilities, quoted prices in markets that are not active, or other inputs that are observable or can be corroborated by observable market data such as matrix pricing, yield curves and indices.

Level 3 Inputs: Significant unobservable inputs that reflect the 401(k) Plan's own assumptions about the assumptions that market participants would use in pricing an asset or liability.

In many cases, a valuation technique used to measure fair value includes inputs from multiple levels of fair value hierarchy. The lowest level of significant input determines the placement of the entire fair value measurement in the hierarchy.

The following descriptions of the valuation methods and assumptions used by the 401(k) Plan to estimate the fair value of investments apply to investments held directly by the 401(k) Plan.

**Mutual funds**: A mutual fund is an investment company that pools the capital of many investors and invests it in stocks, bonds, short-term money market instruments, and other securities. The 401(k) Plan's investments in any mutual funds are valued at quoted market prices based on their closing net asset values (or unit value) per share. Since mutual fund holdings are priced by an exchange in an active market, they are classified as Level 1.

**Collective trusts:** The fair values of participation units held in the collective trusts are based on the net asset values per unit as reported by the fund managers. The collective trusts provide for daily redemptions by the Plan at reported net asset values per share, with no advance notice requirement.

**Self-directed brokerage link (BrokerageLink)**: BrokerageLink allows participants to purchase Fidelity funds, other mutual funds not offered by Fidelity, or other investment securities. Participating members open a brokerage account with Fidelity. Each member selects the specific holdings for their account. BrokerageLink comprises primarily stocks, mutual funds, bonds, certificates of deposit, and exchange-traded options. The fair value hierarchy classification is determined by the category pricing methodologies.

Mutual funds, including money market mutual funds, are priced by an exchange in an active market and are therefore classified as Level 1. Stocks are priced based on quoted bid prices in active markets for identical assets and are therefore classified as Level 1.

Bonds in BrokerageLink consist primarily of corporate bonds and U.S. Treasury securities. Corporate bonds are valued based on recent bid prices or the average of recent bid and asked prices, when available (Level 2 inputs). If not available, the bonds are valued through matrix pricing, a mathematical technique commonly used to price debt securities that are not actively traded. This method values debt securities without relying exclusively on quoted prices for a specific security but rather by relying on the security's relationship to other benchmark-quoted securities (Level 2 inputs). The fair value of U.S. Treasury securities reflects the closing price reported in the active market in which the security is traded (Level 1 inputs).

Other investments in BrokerageLink consist primarily of certificates of deposit and exchange traded options. Certificates of deposit are typically priced using evaluated pricing applications and models that incorporate observable market data such as current interest rates and relative maturities (Level 2 inputs). Exchange-traded options are generally valued each business day at the official closing price (typically the last reported sales price) on the exchange on which the security is primarily traded. These options are classified as Level 1.

Investments measured at fair value on a recurring basis are summarized as follows.

#### **INVESTMENTS AT FAIR VALUE**

Investments measured at fair value on a recurring basis at September 30, 2016 and 2015, are summarized below:

	Fair Value Measurements at September 30, 2016, Using						Fair Value Measurements at September 30, 2015, Using						
(Dollars in thousands)	Tota	Quoted Prices in Active Markets Significant Other for Identical Observable		ervable	Total		Quoted Prices in Active Markets for Identical Assets Level 1		Significant Other Observable Inputs Level 2				
Mutual Funds	\$	63,842	\$	63,842	\$	-		\$	1,654,769	\$	1,654,769	\$	
Collective trusts <sup>(a)</sup>		1,591,439							155,249				
BrokerageLink		381,040		379,478		1,562			122,125		120,770		1,355
Total Investments at fair value	\$	2,036,321	\$	443,320	\$	1,562	-	\$	1,932,143	\$	1,775,539	\$	1,355

<sup>(a)</sup> Certain investments that are measured at fair value using the net asset value per share (or its equivalent) practical expedient have not been classified in the fair value hierarchy. The fair value amounts presented in this table are intended to permit reconciliation of the fair value hierarchy to the amounts presented in the statement of net assets available for benefits.

#### **Risks and Uncertainties**

The 401(k) Plan holds various investments. Investments are exposed to various risks such as interest rate, market, liquidity, and credit risks. Due to the level of risk associated with certain investments and the sensitivity of certain fair value estimates to changes in valuation, it is at least reasonably possible that changes in the values of investments will occur in the near term and that such changes could materially affect the amounts reported in the Statements of Net Assets Available for Benefits and participants' individual account balances.

#### **Tax Status**

The Internal Revenue Service (IRS) determined and informed the System in August 2014 that the 401(k) Plan is designed in accordance with the applicable sections of the Internal Revenue Code (IRC). The 401(k) Plan has been amended subsequent to the receipt of the latest IRS determination letter. However, System management and its tax counsel believe that the 401(k) Plan is currently designed and being operated in compliance with the applicable requirements of the IRC. Therefore, no provision for income taxes has been included in these financial statements.

As a plan maintained for employees of an agency of the federal government, the 401(k) Plan is a governmental plan within the meaning of Section 3(32) of the Employment Retirement Income Security Act of 1974 (ERISA) and Section 414(d) of the IRC. As a governmental plan, the 401(k) Plan is exempt from ERISA and the requirements of the IRC that parallel those contained in ERISA, which govern private employer retirement plans.

Accounting principles generally accepted in the United States of America require System management to evaluate tax positions taken by the 401(k) Plan. A tax position is recognized as a benefit only if it is "more likely than not" that the tax position would be sustained in a tax examination, with a tax examination presumed to occur. The amount recognized is the largest amount of tax benefit that is greater than 50% likely of being realized upon examination. For tax positions not meeting the "more likely than not" test, no tax benefit is recorded.

System management has analyzed the tax positions it has taken, and has concluded that as of September 30, 2016 and 2015, there are no uncertain positions taken or expected to be taken that would require recognition of a liability (or asset) or disclosure in the financial statements. The 401(k) Plan is subject to routine audits by the Internal Revenue Service, Tax Exempt and Government Entities Division; however,

there are currently no audits for any tax periods in progress. System management believes the 401(k) Plan is no longer subject to plan qualification examinations for years prior to 2010.

#### **Management Estimates**

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date(s) of the financial statements and the reported amounts of revenues and expenses during the reporting period(s). Actual results could differ from those estimates.

# Note 3 AMENDMENTS TO 401(k) PLAN PROVISIONS

On August 8, 2016, the System Board approved amendments to the 401(k) Plan Provisions, and these amendments were also approved by the TVA Board of Directors on August 25, 2016. The amendments, which became effective on October 1, 2016, change future contributions from TVA to certain members participating in the 401(k) Plan. For CBBS members first hired on or after January 1, 1996, and having more than 10 years of service as of October 1, 2016, members will begin receiving nonelective contributions to their accounts in the 401(k) Plan and reduced pay credits pay credits to their accounts in the pension plan. For CBBS members first hired on or after January 1, 1996, and having less than 10 years of service as of October 1, 2016, members und having less than 10 years of service as of October 1, 2016, members und having less than 10 years of service as of October 1, 2016, members und having less than 10 years of service as of October 1, 2016, members und having less than 10 years of service as of October 1, 2016, members und having less than 10 years of service as of October 1, 2016, members will begin receiving nonelective contributions and higher matching contributions to their accounts in the 401(k) Plan and will no longer receive pay credits to their cash balance accounts; however their cash balance accounts will continue to receive interest credits.

# Note 4 COMMITMENTS AND CONTINGENCIES

The 401(k) Plan had no existing material commitments or contingencies at September 30, 2016 and 2015.

# Note 5 REVENUE CREDITS

Effective January 2016 the System Board amended the Fidelity trust agreement to reflect modified revenue credit provisions and a per-participant fee. Under the amended agreement, participants will pay a flat quarterly fee for recordkeeping and other plan-related services, including two Fidelity consultants dedicated to the 401(k) Plan.

Prior to January 2016, participants paid for recordkeeping and other plan-related services through revenue sharing fees with their investments in certain funds in the 401(k) Plan lineup offset by revenue credits. On a participant level, the surplus revenue over negotiated Fidelity compensation was allocated to all eligible participants based on the size of their account balance in the 401(k) Plan. Any 401(k) participant with a balance greater than zero on the business day immediately preceding the quarterly crediting date was eligible to receive revenue credits. The revenue credit amounts were credited quarterly on a pro-rata basis based on 401(k) Plan balances and sources. The amount credited to participants' accounts was \$1.4 million in 2016 and \$2.3 million in 2015. Prior to January 2016, revenue credits were also used to pay costs associated with certain Fidelity consultants dedicated to the 401(k) Plan which totaled \$63 thousand in fiscal 2016 and \$250 thousand in 2015.

# Note 6 WITHDRAWALS

#### After-tax contributions

Participants are permitted to withdraw from any or all of the after-tax funds in the 401(k) Plan at any time. Upon retirement, participants in the 401(k) Plan who first became members of the System prior to January 1, 1996, are also permitted to transfer their after-tax 401(k) funds to the System to receive monthly annuity payments, which are classified as Transfers to Annuity Funds on the Statement of Changes in Net Assets Available for Benefits.

#### Before-tax and Roth contributions

IRS rules restrict withdrawals from the 401(k) Plan while the member is still employed except for the following situations:

- If the member is over age 59½, salary deferral contributions may be withdrawn at any time.
- If the member is under age 59½, salary deferral contributions may be withdrawn only upon the System Board's approval and only upon a showing of hardship defined as an immediate and heavy financial need where there is a lack of other available resources. Generally, the only financial needs considered to meet the definition of hardship are (1) certain deductible medical expenses, (2) purchase of a principal residence, (3) post-secondary tuition and related educational fees, (4) payments necessary to prevent eviction from or foreclosure on the participant's principal residence, (5) payments for funeral or burial expenses for the participant's deceased family members, or (6) expenses to repair damage to the participant's principal residence resulting from casualty loss.

Participants may receive the full balance of their funds upon retirement, disability, death or termination, except that a retiree may defer distribution until no later than April 1 of the calendar year after the year in which he or she reaches age 70½. In addition, participants may choose, after termination, to receive periodic installment payments from their balance.

## Note 7

# ADMINISTRATIVE EXPENSES AND PARTICIPANT COSTS

The cost of recordkeeping and certain other services of the 401(k) Plan are paid by the 401(k) Plan participants. Beginning January 2016, participants are charged a flat, quarterly recordkeeping fee, which is deducted from participants' accounts. Prior to January 2016, participants paid for these services through revenue sharing fees associated with their investments in certain funds in the 401(k) Plan lineup, offset by revenue credits received by the participants as described in Note 6. Participants also pay certain costs associated with services such as managed accounts and loans, which are deducted from participants' accounts. Participant costs are included within benefits and withdrawals in the 401(k) Plan's Statement of Changes in Net Assets Available for Benefits. Investment management fees for the funds in the 401(k) Plan investment lineup are charged as a reduction of investment return and included in the investment income (loss) reported by the 401(k) Plan.

All administrative expenses of the 401(k) Plan are paid by TVA. The 401(k) Plan incurred \$236 thousand in administrative expenses in 2016 and \$444 thousand in 2015.

## Note 8

## NOTES RECEIVABLE FROM PARTICIPANTS

With certain limits, the 401(k) Plan permits loans to participants from their own accounts. Participants may borrow a percentage of their vested account balance (maximum \$50,000) for up to five years, or 10 years if the loan is to be used to purchase a primary residence. The loan interest rate is the prime rate as of the beginning of the quarter during which the loan was taken plus 1 percent, which was 4.5 percent at September 30, 2016 and 4.25 percent at September 30, 2015. Such interest is credited directly to the account of the participant.

Notes receivable from participants are reported at their unpaid principal balance, with no allowance for credit losses, as repayments of principal and interest are received through payroll deductions and the notes are collateralized by the participants' account balances.

# Note 9 SUBSEQUENT EVENTS

401(k) Plan management has evaluated subsequent events for recognition and disclosure through April 18, 2017, which is the date the financial statements were available to be issued.

On August 8, 2016, the System Board approved amendments to the 401(k) Plan Provisions, and these amendments were also approved by the TVA Board of Directors on August 25, 2016. The amendments, which became effective on October 1, 2016, change future contributions from TVA to certain members participating in the 401(k) Plan. See Note 3, Amendments to 401(k) Plan Provisions, for additional information.

# **Contact Information**

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