Board Meeting

February 16, 2018

Chattanooga, Tennessee

Rate Overview

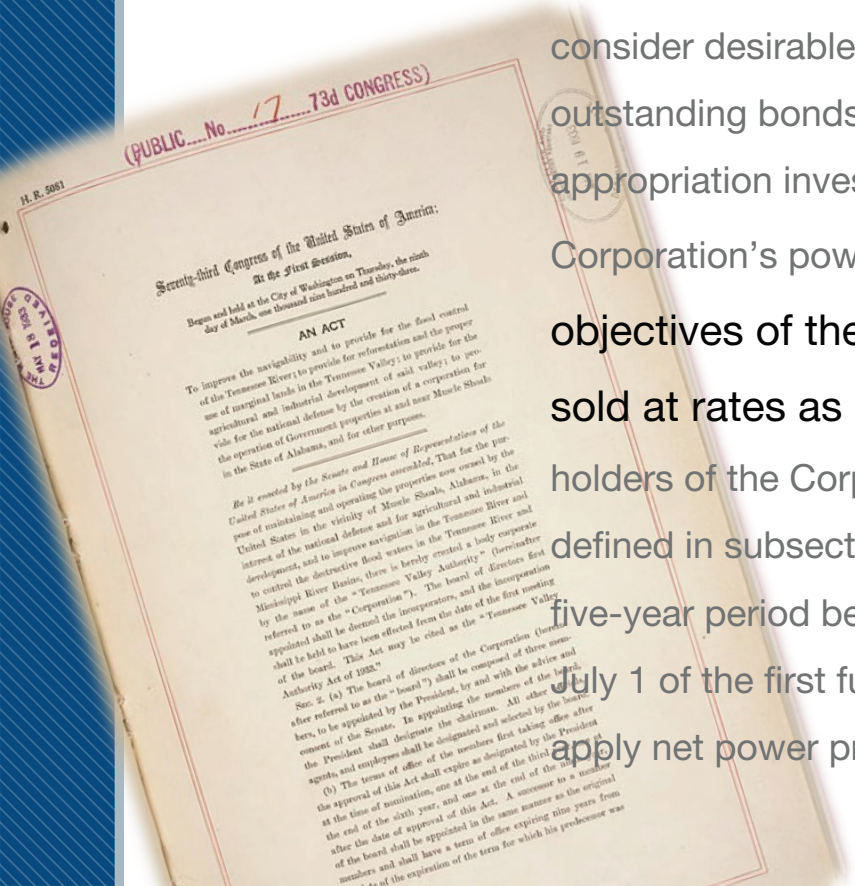
February 16, 2018

Chattanooga, Tennessee

Winter Power Bills

Energy Efficiency

TVA Act


(PUBLIC—No. 17—73d CONGRESS)

H. R. 5081

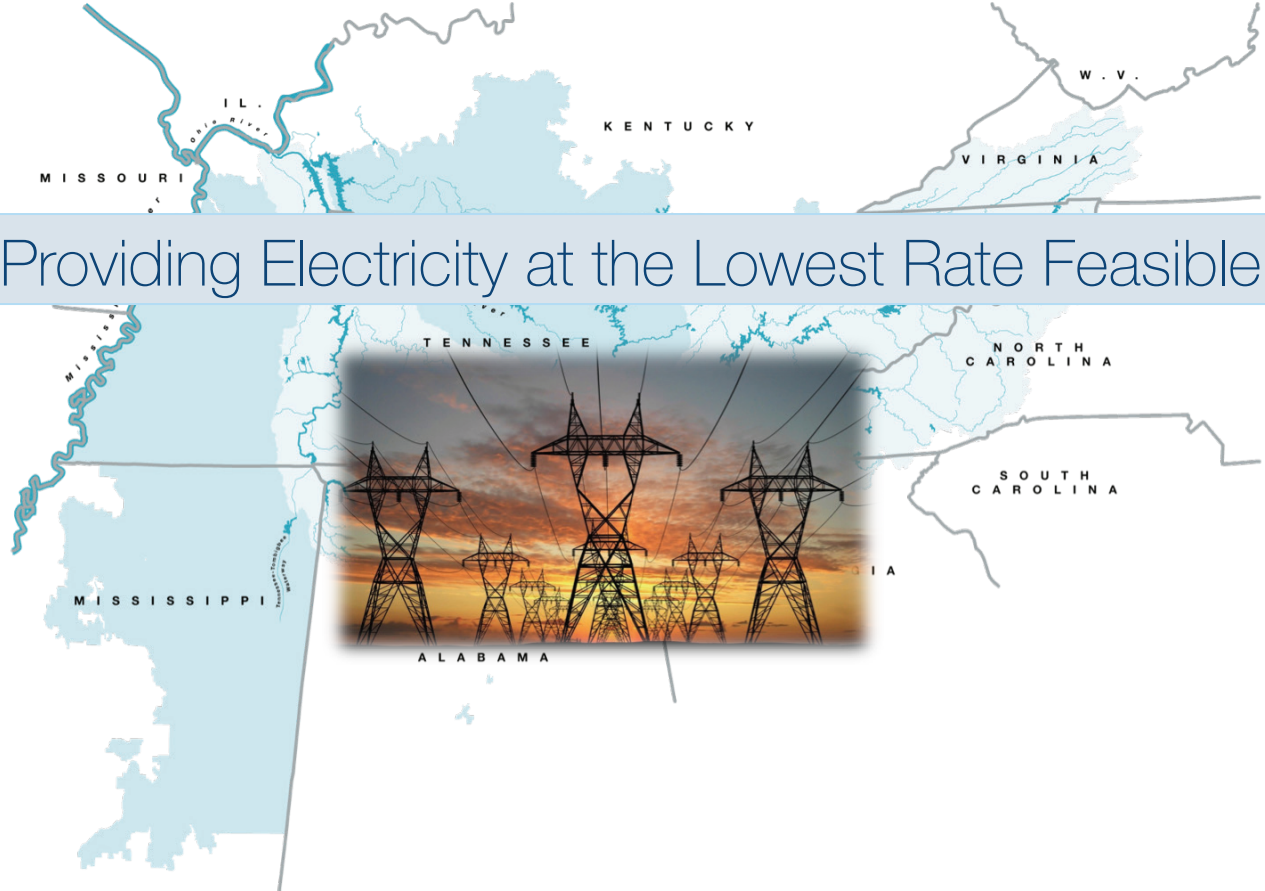
Seventy-third Congress of the United States of America;
At the First Session,
Begun and held at the City of Washington on Thursday, the ninth day of March, one thousand nine hundred and thirty-three.

AN ACT

To improve the navigability and to provide for the flood control of the Tennessee River; to provide for reforestation and the proper use of marginal lands in the Tennessee Valley; to provide for the agricultural and industrial development of said valley; to provide for the national defense by the creation of a corporation for the operation of Government properties at and near Muscle Shoals in the State of Alabama, and for other purposes.

consider desirable for investment in power system assets, retirement of outstanding bonds in advance of maturity, additional reduction of appropriation investment, and other purposes connected with the Corporation's power business having due regard for the **primary objectives of the Act, including the objective that power shall be sold at rates as low as are feasible**. In order to protect the investment of holders of the Corporation's securities and the appropriation investment as defined in subsection (e) hereof, the Corporation, during each successive five-year period beginning with the five-year period which commences on July 1 of the first full fiscal year after the effective date of this section, shall apply net power proceeds either in reduction

TVA is Public Power…



Providing Electricity at the Lowest Rate Feasible

How Rates are Set

TVA

TVA Board sets rates and design for its customers.

- Base rate + fuel charge = wholesale rate
- Rates are set by customer class based on cost of service – how much it actually costs to serve each customer group
- Rate design is informed by cost of service and other factors

LPC

Local power company rates and design are set by local power company board.

- LPC boards are elected by their customers or appointed by those so elected.
- TVA reviews and approves the rates as regulator. LPC rates include TVA power costs plus costs of the local power system.

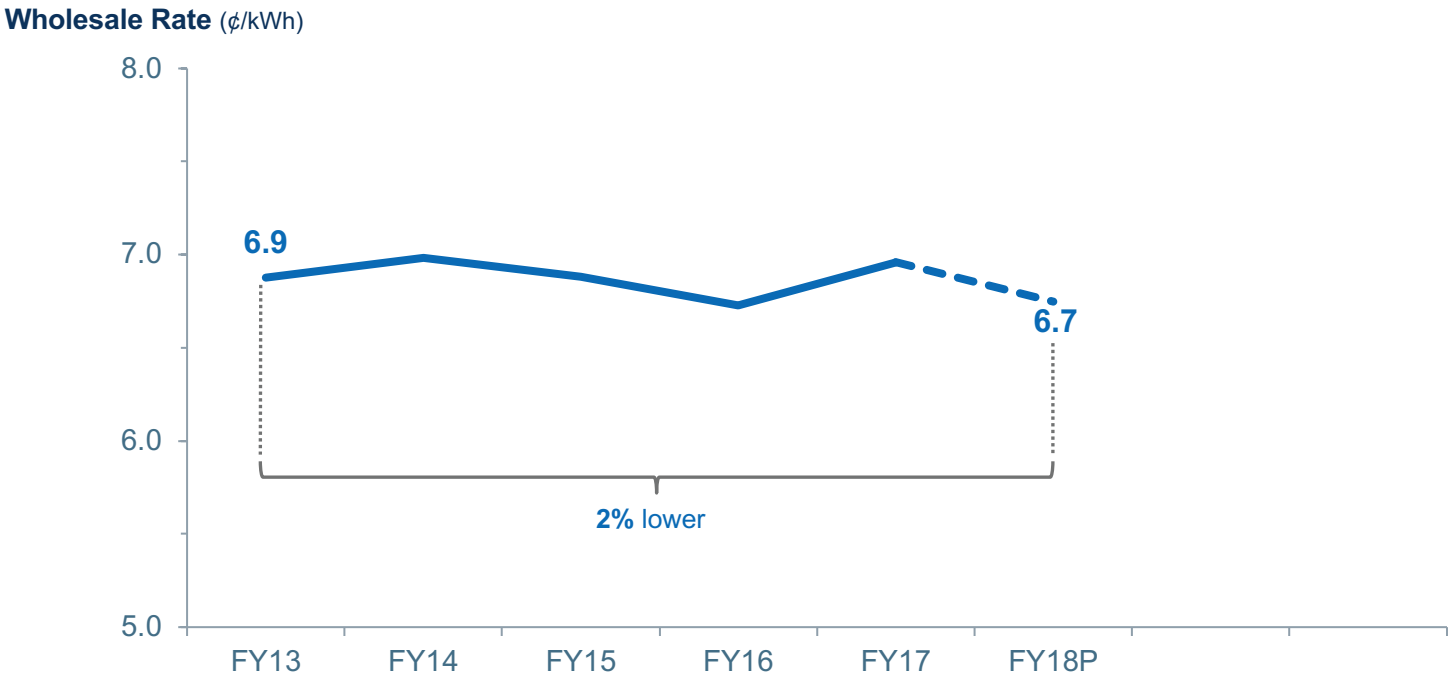
How Power is Distributed

154 Local Power Companies
Delivering energy to local homes and businesses

"The responsibility for distribution supply, from the city gate to the electric refrigerator or the factory drill press, is solely theirs, subject only to broad policies that are part of a contract voluntarily entered into, which binds both the federal government and the local community."

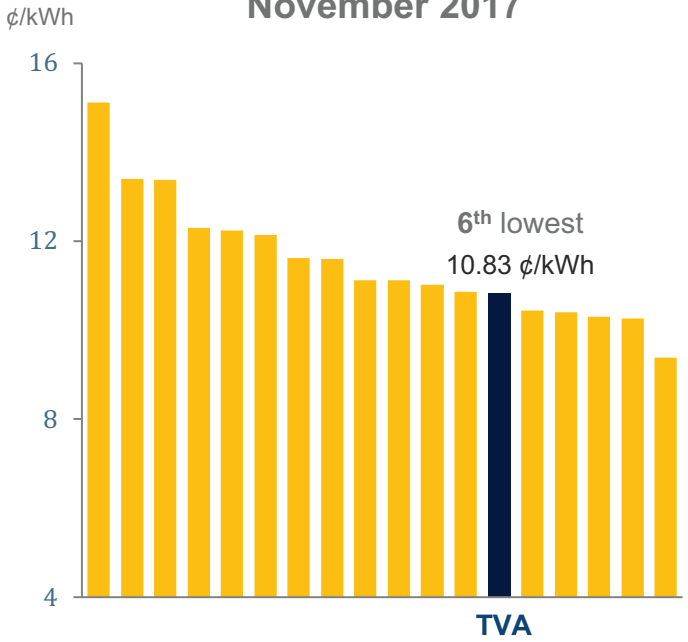
David E. Lilienthal
TVA Board, 1933-1946
"Father of Public Power"

Maintaining Low Rates - Wholesale



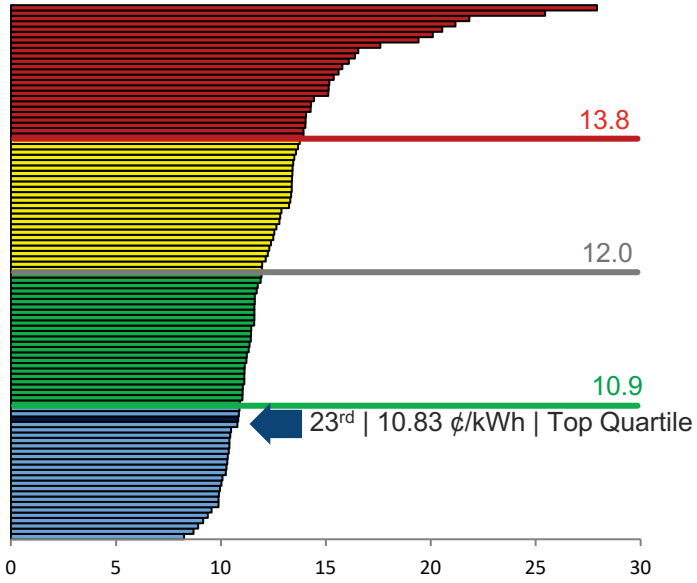
Improving Residential Rate Competitiveness

Compared to Regional Peers
November 2017



April 2013 – 9th lowest

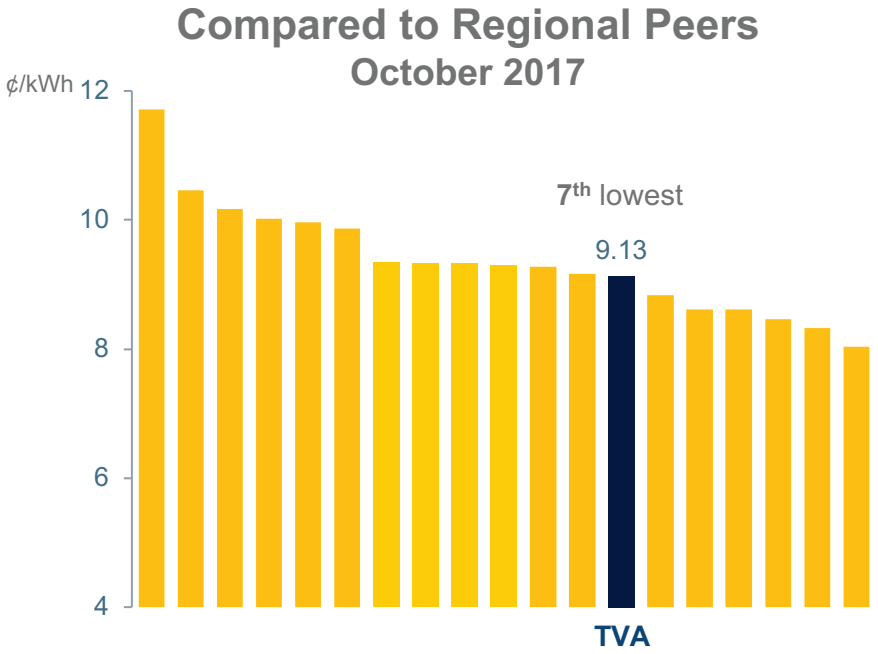
Among Top 100 U.S. Utilities
November 2017



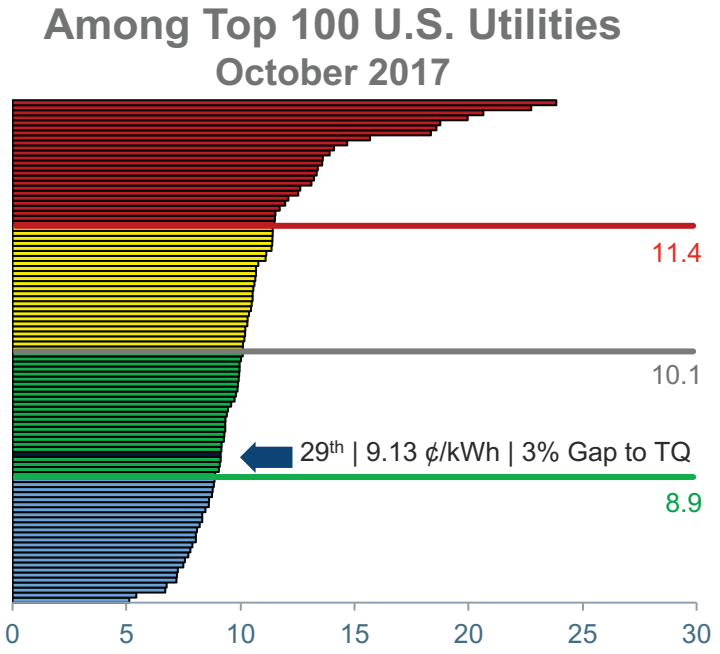
April 2013 – 33rd lowest – 4% Gap to Top Quartile

Source: EIA-826 & ESS 12 month Average from December 2016 to November 2017

Improving Retail Rate Competitiveness



April 2013 – 12th lowest

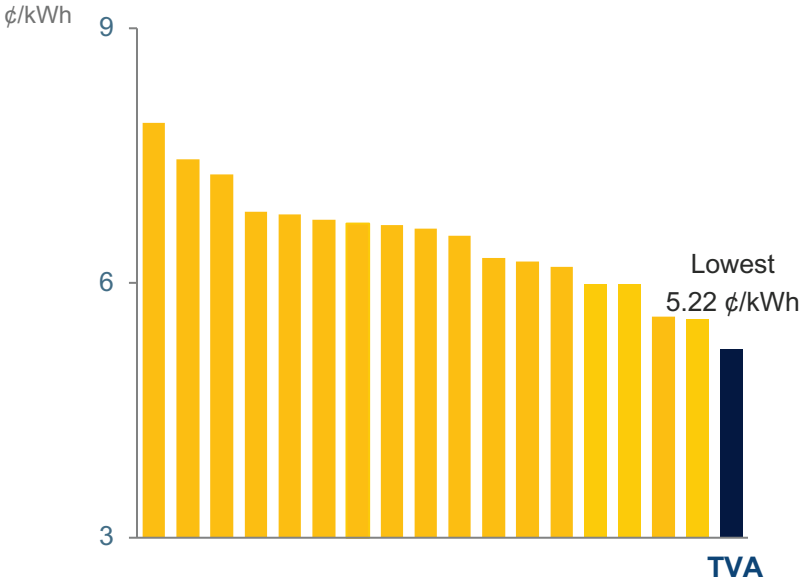


April 2013 – 37th lowest – 8% Gap to Top Quartile

Source: EIA-826 & ESS 12 month Average from November 2016 to October 2017

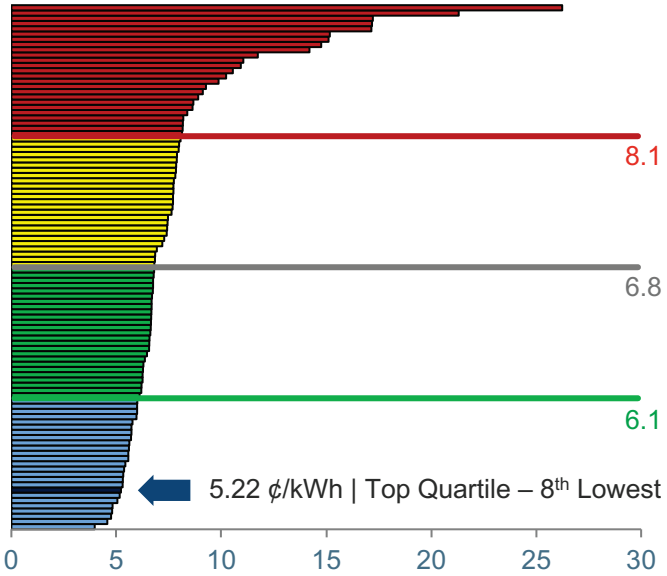
Maintaining Competitive Industrial Rates

Compared to Regional Peers
November 2017



April 2013 – 4th lowest – Top Quartile

Among Top 100 U.S. Utilities
November 2017



April 2013 – 21st lowest – Top Quartile

Source: EIA-826 & ESS 12 month Average from December 2016 to November 2017

Rate Differential Comparison*

Industrial

Residential

	U. S. Average (per kWh)	TVA Region Average (per kWh)
Differential	6.22¢	5.61¢

* Source: U.S. Energy Information Agency

Pricing

The proposed change **WILL NOT PRODUCE** more revenue for TVA

Modernized Pricing Structure

Water

Cell Phone

Pricing

FIXED

VARIABLE

Pricing

FIXED

VARIABLE

Renewable Energy

INVESTING
~ **$8 Billion**
over the next
twenty years

Board Meeting

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Chattanooga, Tennessee

Committee Membership

Audit, Risk, and Regulation

Skip Thompson, Chair

Kenny Allen

Gina Lodge

Finance, Rates, and Portfolio

Ron Walter, Chair

A.D. Frazier

Richard Howorth

People and Performance

Gina Lodge, Chair

Skip Thompson

Ron Walter

External Relations

Eric Satz, Chair

A.D. Frazier

Richard Howorth

Jeff Smith

Nuclear Oversight

Jeff Smith, Chair

Kenny Allen

Eric Satz

President’s Report

BILL JOHNSON

President and CEO

Chattanooga

New Board Members

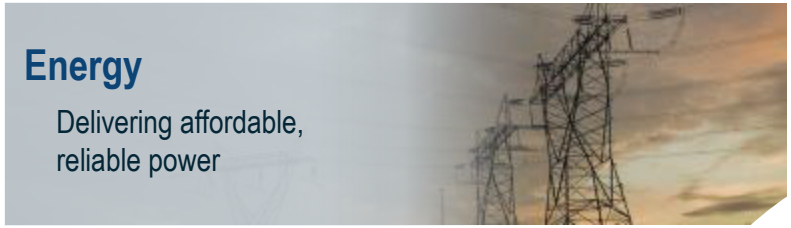
Jeff W. Smith

Kenneth Allen

James Thompson

A. D. Frazier

Mission | Strategic Imperatives



Energy

Delivering affordable, reliable power

Environment

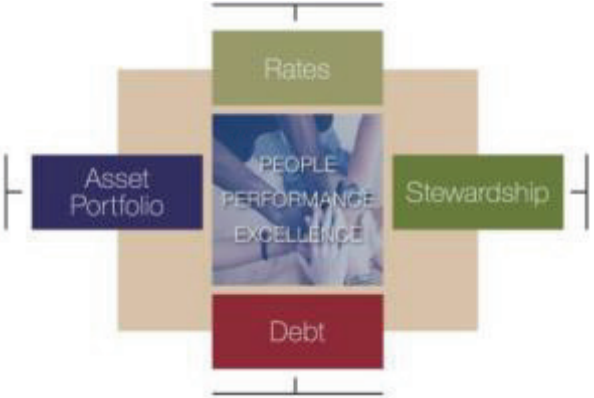
Caring for our region's natural resources

Economic Development

Creating sustainable economic growth

Meet reliability expectations & provide a balanced portfolio

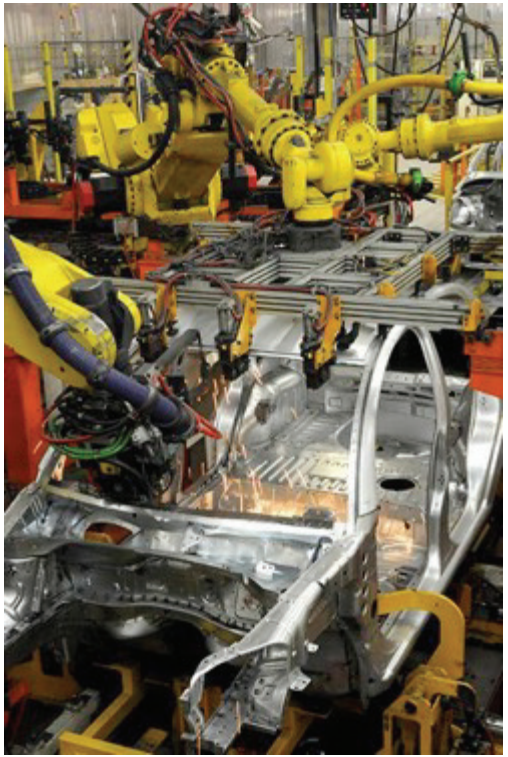
Maintain low rates



Live within our means

Be responsible stewards

Energy | Environment | Economic Development



FRIGID TEMPERATURES

Coldest Start in 20 Years

TVA Transmission System

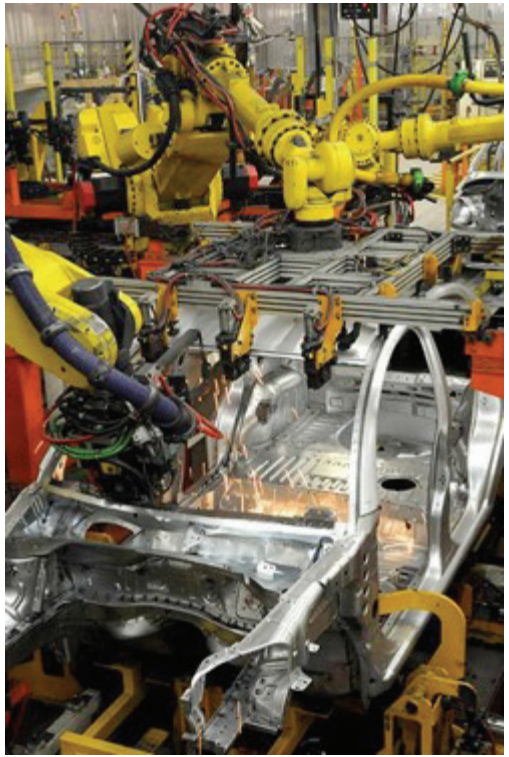
Browns Ferry Nuclear Plant

Allen

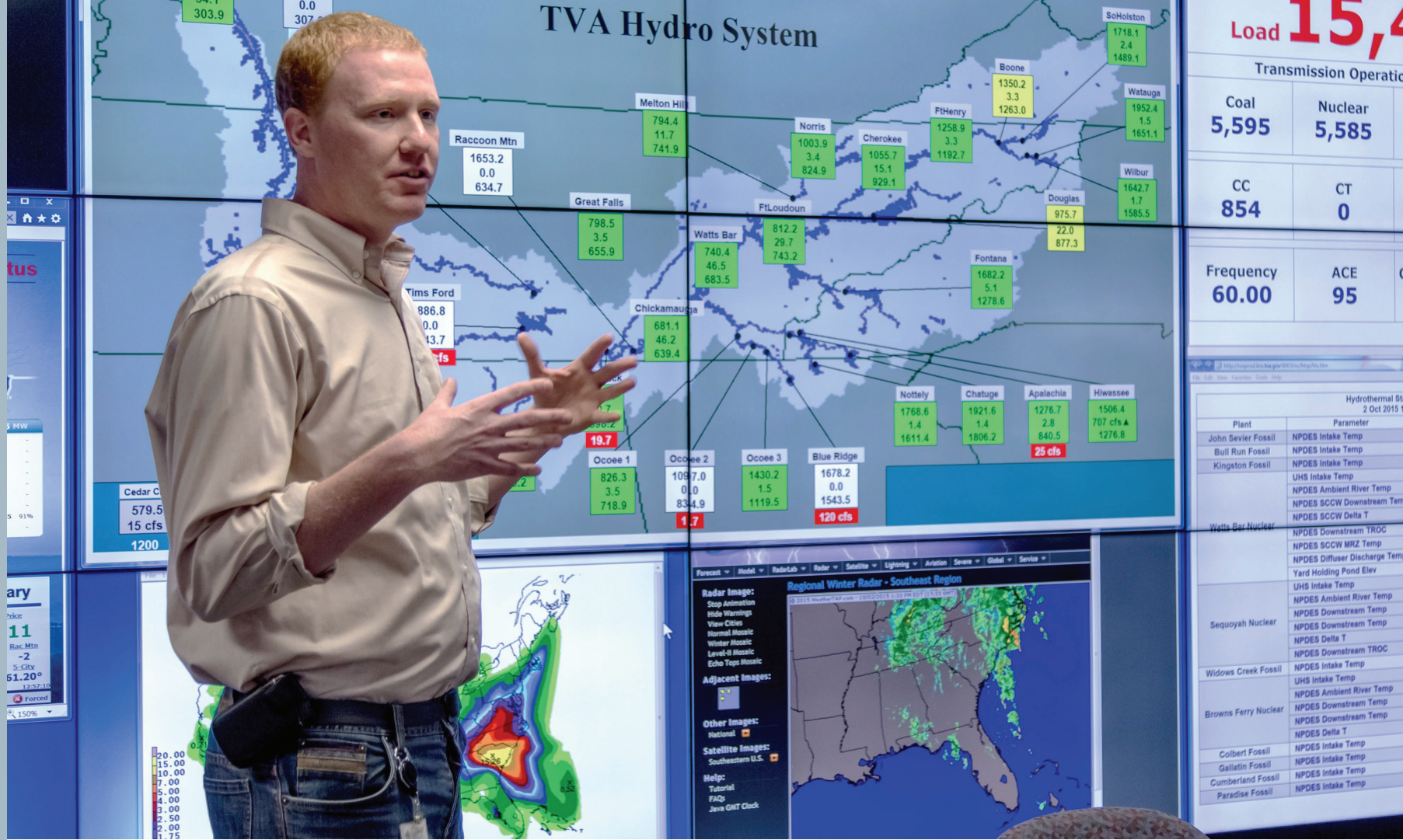
Combined Cycle Units

Johnsonville

Energy | **Environment** | Economic Development



Carbon Reduction Awards


TVA Hydro System
Load
Transmission Operatio
Coal
5,595
Nuclear
5,585
CC
854
CT
0
Frequency
60.00
ACE
95
Raccoon Mtn
1653.2
0.0
634.7
Melton Hill
794.4
11.7
741.9
Great Falls
798.5
3.5
655.9
Norris
1003.9
3.4
824.9
Cherokee
1055.7
15.1
929.1
FtHenry
1258.9
3.3
1192.7
Boone
1350.2
3.3
1263.0
SoHolston
1718.1
2.4
1489.1
Watauga
1952.4
1.5
1651.1
Wilbur
1642.7
1.7
1585.5
Douglas
975.7
22.0
877.3
FtLoudoun
812.2
29.7
743.2
Watts Bar
740.4
46.5
683.5
Fontana
1682.2
5.1
1278.6
Chickamauga
681.1
46.2
639.4
Tims Ford
886.8
Nottely
1768.6
1.4
1611.4
Chatuge
1921.6
1.4
1806.2
Apalachia
1276.7
2.8
840.5
25 cfs
Hiwassee
1506.4
707 cfs
1276.8
Ocoee 1
826.3
3.5
718.9
Ocoee 2
1097.0
0.0
834.9
Ocoee 3
1430.2
1.5
1119.5
Blue Ridge
1678.2
0.0
1543.5
120 cfs
19.7
Cedar C
579.5
15 cfs
1200
Regional Winter Radar - Southeast Region
Radar Image:
Adjacent Images:
Other Images:
Satellite Images:
Help:
Plant
Parameter
John Sevier Fossil
Bull Run Fossil
Kingston Fossil
Watts Bar Nuclear
Sequoyah Nuclear
Widows Creek Fossil
Browns Ferry Nuclear
Colbert Fossil
Gallatin Fossil
Cumberland Fossil
Paradise Fossil
NPDES Intake Temp
UHS Intake Temp
NPDES Ambient River Temp
NPDES SCCW Downstream Temp
NPDES SCCW Delta T
NPDES Downstream TROC
NPDES SCCW MRZ Temp
NPDES Diffuser Discharge Temp
Yard Holding Pond Elev
NPDES Downstream Temp
NPDES Delta T

2018 Recreation Season

Recreation

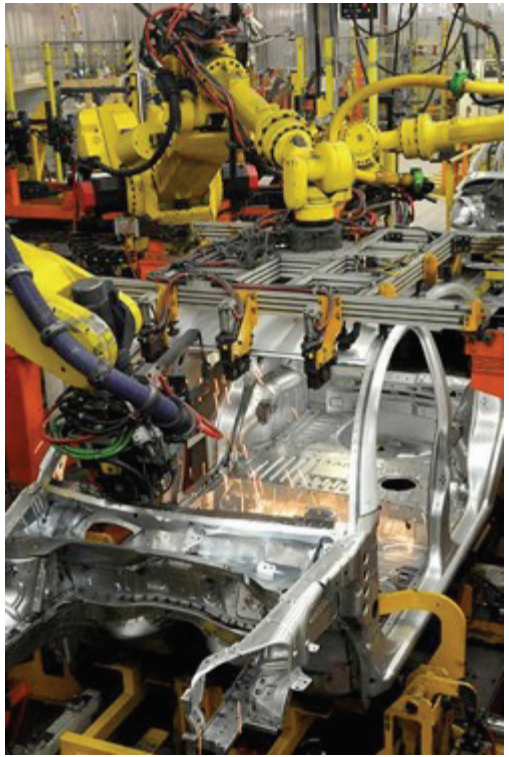
- ✓ Processed over 400 requests for permits for shoreline construction
- ✓ Reviewed > 6,000 acres of public land to improve our properties
- ✓ Environmental education programs for >3,600 children
- ✓ Partnered with communities on >200 events and volunteer activities

Recreation on TVA lakes is worth about

$12 billion in business each year,

and it **generates 130,000 jobs a year**

Energy | Environment | Economic Development



Economic Development Accomplishments

SINCE 2011

400,000 JOBS

Attracted or Retained

RESULTING IN

$48 billion

Direct Investment

1ST QUARTER 2018

20,600

New or Retained Jobs

$5 billion

Capital Investment

Huntsville Megasite

DRIVEN BY HUNTSVILLE

TOYOTA mazda

- 4,000 Jobs
- $1.6B in CAPEX
- Constructing two automotive plants on the TVA Certified Megasite in Huntsville/Limestone County
- Capacity to produce 300,000 Mazda Crossovers and Toyota Corollas

THE VALLEY WORKS

TVA

2018 Engineer of the Year

Greg Goza

Senior Program Manager
Transmission & Power Supply

President’s Report

BILL JOHNSON

President and CEO

Finance, Rates, and Portfolio Committee

Financial Performance Update

JOHN THOMAS

Executive Vice President
and Chief Financial Officer

Q1 Fiscal Year 2018

Net Income: $288M

- $175M more than budget and $186M above last year

Operating Revenues: $111M above budget

- Higher demand revenue

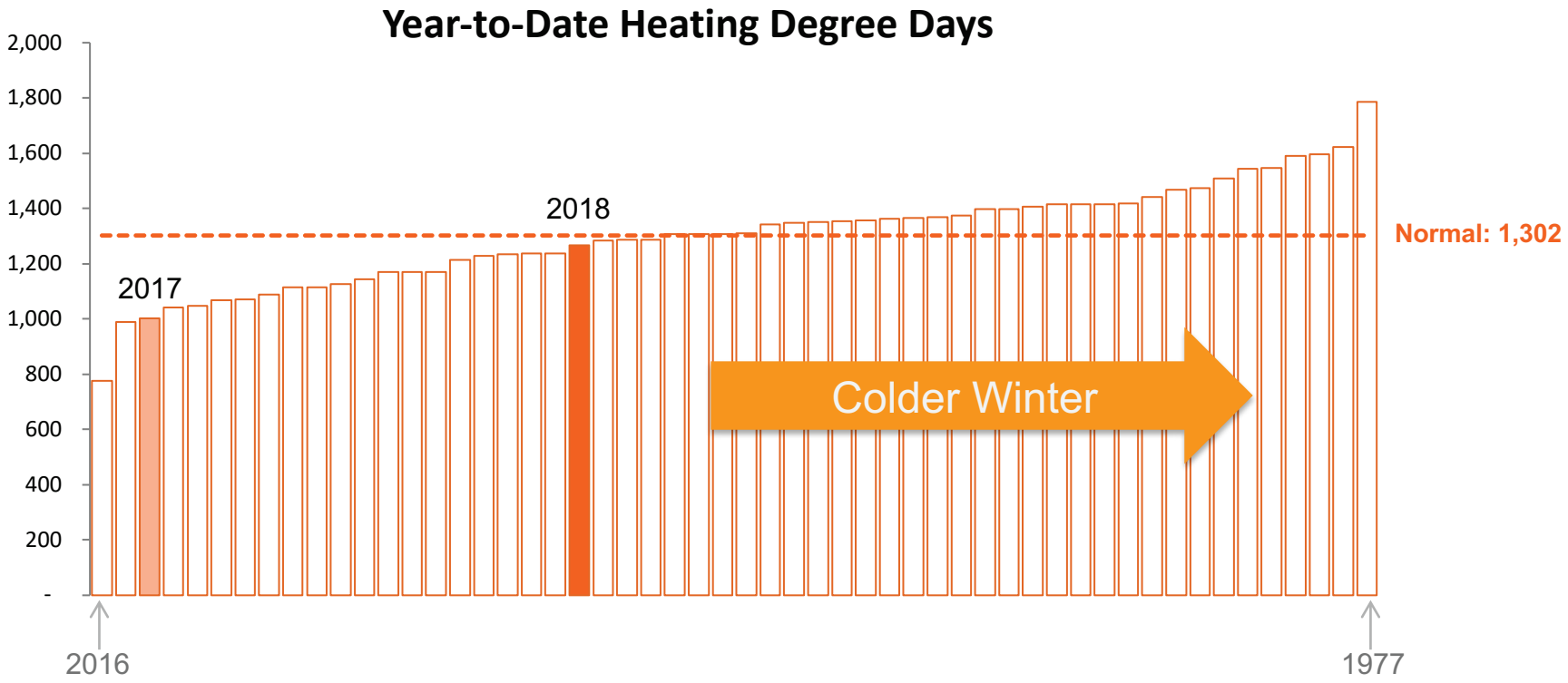
Operating & Maintenance Expenses (O&M): $13M favorable to budget

- Favorable Business Unit O&M

Interest Expense: $28M favorable to budget

- Lower debt rates and less reliance on debt

FYTD18 Close to Normal



First Quarter Fiscal Years 1965 through 2018 Ranked by Heating Degree Days

Q1 Summary Income Statement

$175M favorable due to operating revenue and lower expenses

$ million	FYTD 2018 Actual	FYTD 2018 Budget	Variance Fav/(Unfav)	FYTD 2017 Actual	'18 v '17 Fav/(Unfav)
Operating Revenue	**$ 2,549**	**$ 2,438**	**$ 111**	$ 2,546	$ 3
Fuel & Purchased Power	**695**	**708**	**13**	810	115
Total O&M	**709**	**722**	**13**	741	32
Taxes, Depreciation, Other	**535**	**545**	**10**	554	19
Interest	**322**	**350**	**28**	339	17
Net Income (Loss)	**$ 288**	**$ 113**	**$ 175**	$ 102	$ 186

Q1 Summary Cash Flow Statement

TFOs were $557M favorable to budget, reflecting $248M of favorability FYTD 2018

$ million	FYTD 2018 Actual	FYTD 2018 Budget	FYTD 2018 Variance	FYTD 2017 Actual	'18 v '17
Cash Flow from Operating Activities	$ 613	$ 370	$ 243	$ 617	$ (4)
Cash Flow used in Investing Activities	(628)	(635)	7	(707)	79
Cash Flow from Financing Activities	15	265	(250)	90	(75)
Net Change in Cash & Cash Equivalents	**-**	**-**	**-**	**-**	**-**
Ending Cash & Short-Term Investments	**300**	**300**	**-**	**300**	**-**
Ending Debt and Financing Obligations	**$ 26,021**	**$ 26,578**	**$ 557**	**$ 26,270**	**$ 249**

Q1 Summary (Results v. Plan)

Higher Demand Sales – warmer fall drove favorable peak demand revenue

Lower Expenses – interest and O&M

Lower Debt Balance – favorable cash flows resulting in less debt

Audit, Risk, and Regulation Committee

Nuclear Oversight Committee

External Relations Committee

Federal Advisory Committee Charter Renewals

VAN WARDLAW
Executive Vice President
External Relations

Background

- TVA created two Public Advisory Committees to gain advice from public and private sectors with specific areas of focus:
  - Regional Resource Stewardship Council (RRSC) focuses on natural resource stewardship activities
  - Regional Energy Resource Council (RERC) focuses on energy activities and priorities among competing objectives and values
- Advice and recommendations are reported to the TVA Board of Directors
- Charters last two years and must be renewed to continue (proposed renewal makes charters effective through February 2020)

Membership (Based on the Charters)

Each Council consists of up to 20 members with membership balanced to include a broad range of diverse views and interests

	RRSC	RERC
Nominated by Valley states Governors	7	7
Local Power Companies, TVPPA , TVIC, and Direct-Served Industrials	5	4
Economic and Community Development	-	2
Academic and Research Interests	-	2
Environment and/or Energy NGO	1	2
Navigation, Flood Control, Recreation	3	-
At-Large	4	3
Total	20	20

Recommendation

- Approve and authorize renewal of the proposed charters:
  - Regional Resource Stewardship Council (RRSC) – 10th term
  - Regional Energy Resource Council (RERC) – 4th term
- Authorize the Vice President, Enterprise Relations and Innovation, to serve as Designated Federal Officer
- Delegate to the Chief Executive Officer the authority to approve membership and to fill vacancies that may arise during the course of the RRSC 10th term and the RERC 4th term

People and Performance Committee

Meeting Record Power Demands

MIKE SKAGGS

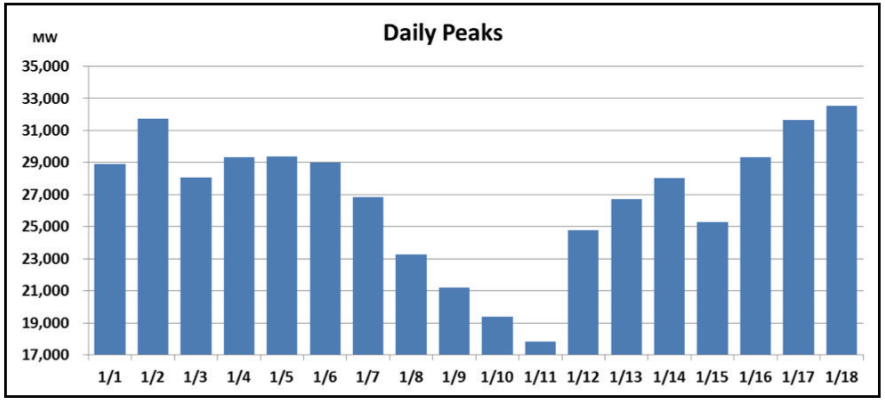
Executive Vice President
Operations

Frigid Temperatures and Record Peak Loads

Frigid temperatures

Coldest start to January in last 20 years

Peak load records

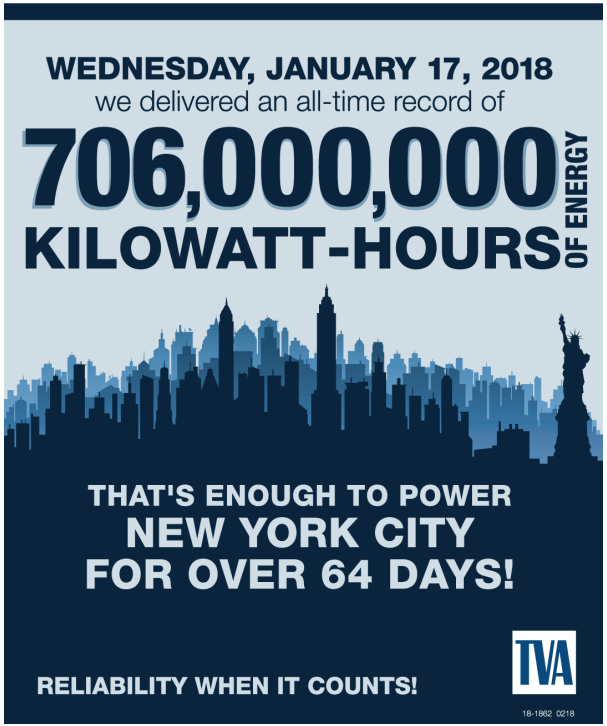


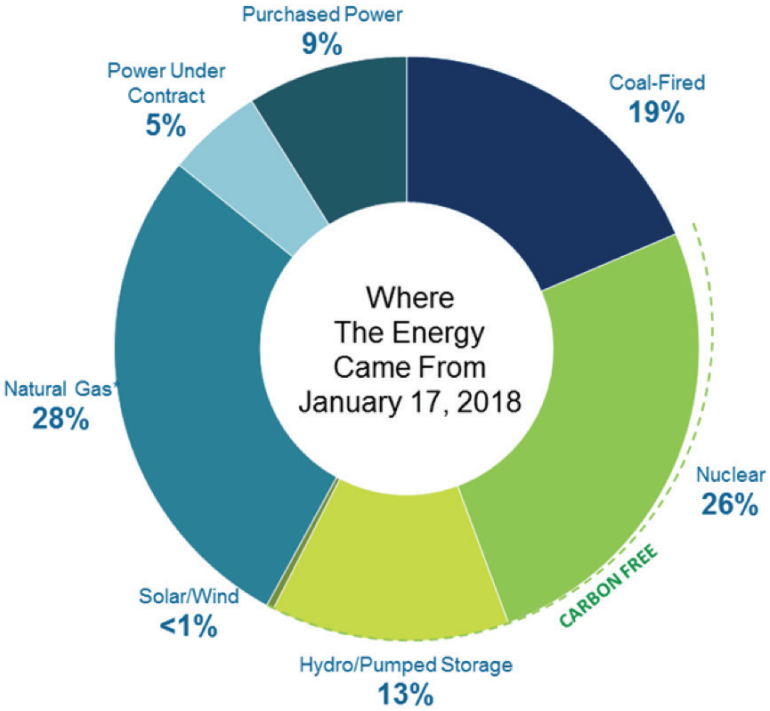
Highest holiday load ever – January 1, 2018

6th highest winter peak – January 18, 2018

14th highest all-time peak – January 2, 2018

All-time Record Energy Delivered





How Power Demands Were Met

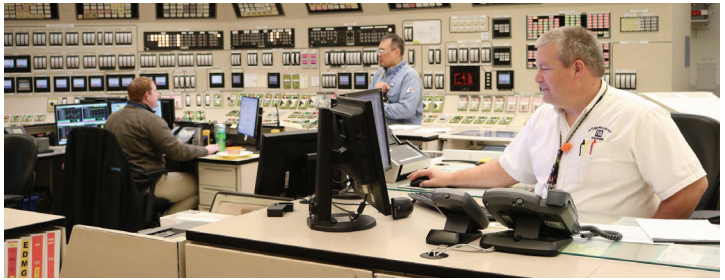
Dedicated employees

Customer support

Diversified generation portfolio

Reliable transmission

Proactive preparation and teamwork



Board Meeting

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Chattanooga, Tennessee

TVA