



# Board Meeting

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February 14, 2019  
Chattanooga, TN



# President's Report

BILL JOHNSON  
President and CEO



Chattanooga







# Chattanooga



# Mission | Strategic Imperatives

Why We Are Here

How We Achieve Sustainability

TVA Mission



Energy



Environment



Economic  
Development

Strategic Imperatives





# Serving



# Financials

operating expenses  **DRIVEN BY** **\$800 MILLION** **IN SUSTAINABLE** efficiency improvement **& REDUCED** operating costs **SAVING \$1 BILLION** PER YEAR IN **LOWER FUEL COSTS**

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The **TVA power system** is one of the **CLEANEST**, **MOST DIVERSE**, and **MOST RELIABLE** power systems **in the nation.**

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**DEBT REDUCED**  
**\$3 BILLION** TO DATE

Long-Range Financial Plan

**FAITHFULLY FOR  
FOLLOWED**

**5 YEARS**



**ONE  
Degree  
SAVES**



# Energy | Environment | Economic Development





# Browns Ferry Uprate



# Hydro Modernization



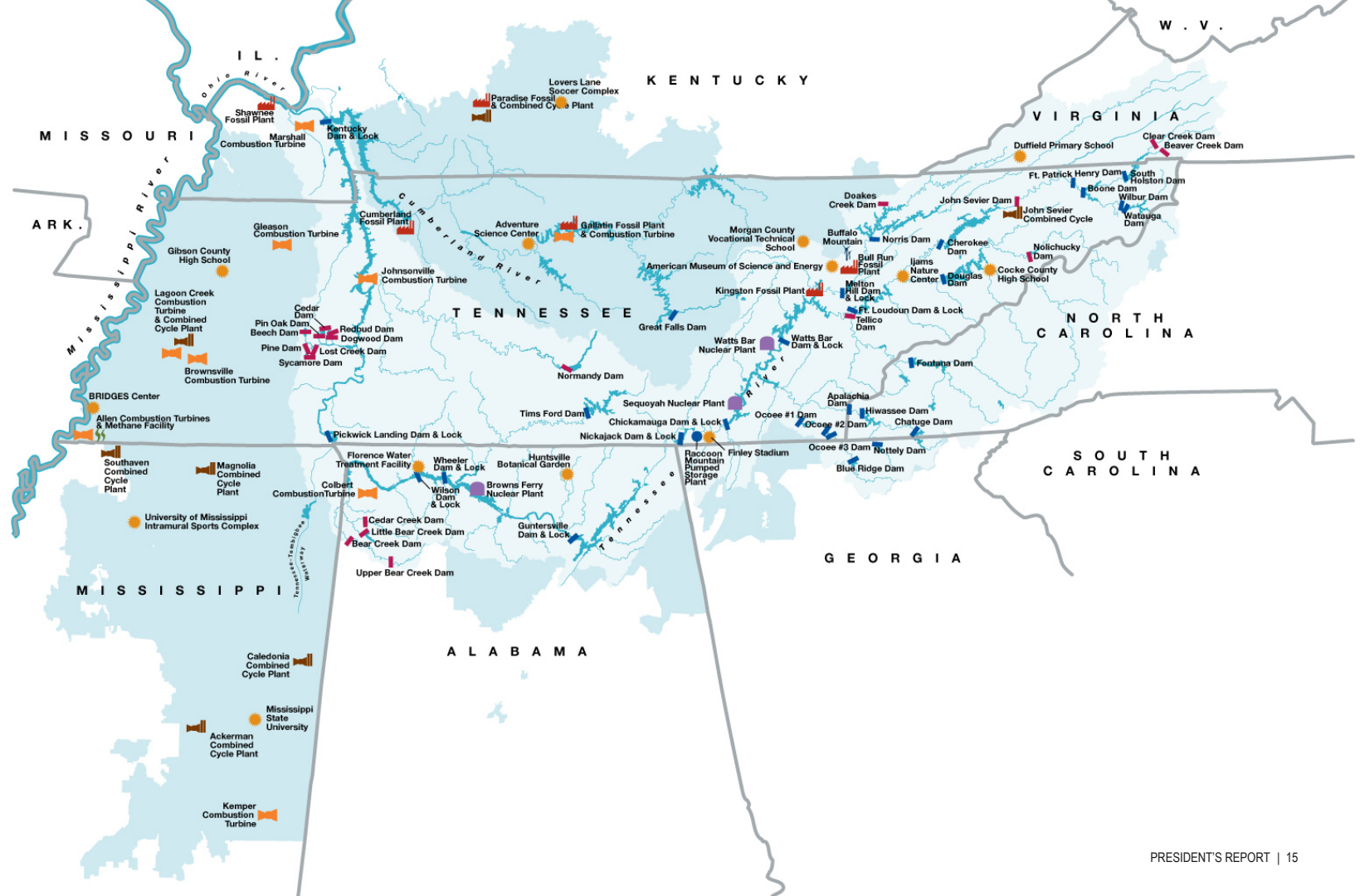




# Energy | Environment | Economic Development

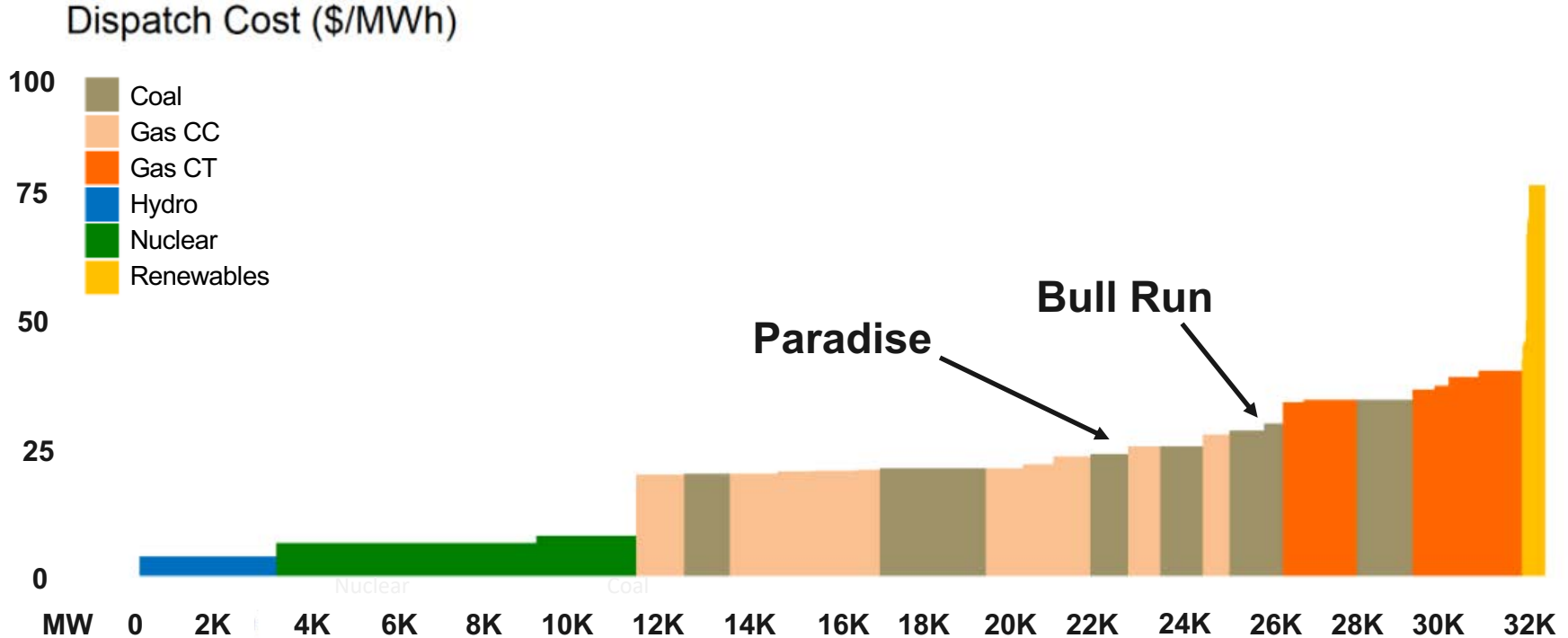








# Dispatch Costs By Plant – FY 2019



# Paradise and Bull Run Don't Fit Portfolio Need

**Large Coal Units**  
**Low Cost / Low EFOR**  
Effectively Serving Baseload

Cumberland



**Large Coal Units**  
**Med-High Cost / High EFOR**  
Ineffectively Operating on the Margin

Paradise



Bull Run



**Small Coal Units**  
**Medium Cost / Low EFOR**  
Effectively Meeting Load Swings

Gallatin



Kingston



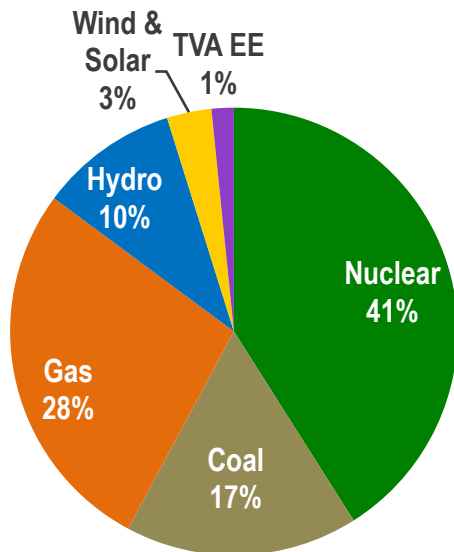
Shawnee





# Power Supply Remains Diverse

**FY19**

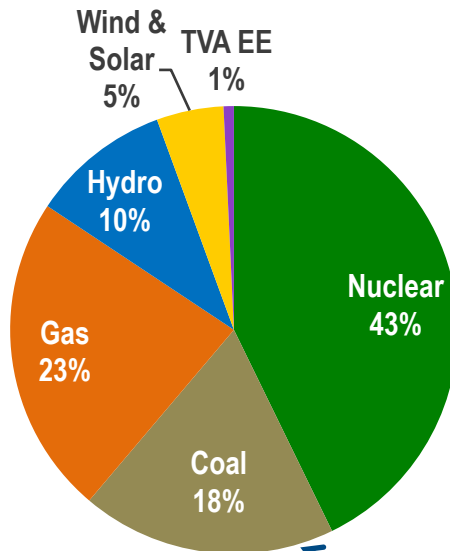


Total CO<sub>2</sub>  
Emissions  
(millions of tons)

48

**FY28**

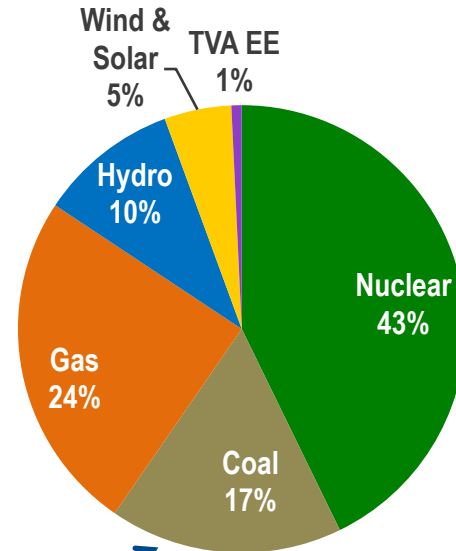
PAF3 & BRF Remain



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**FY28**

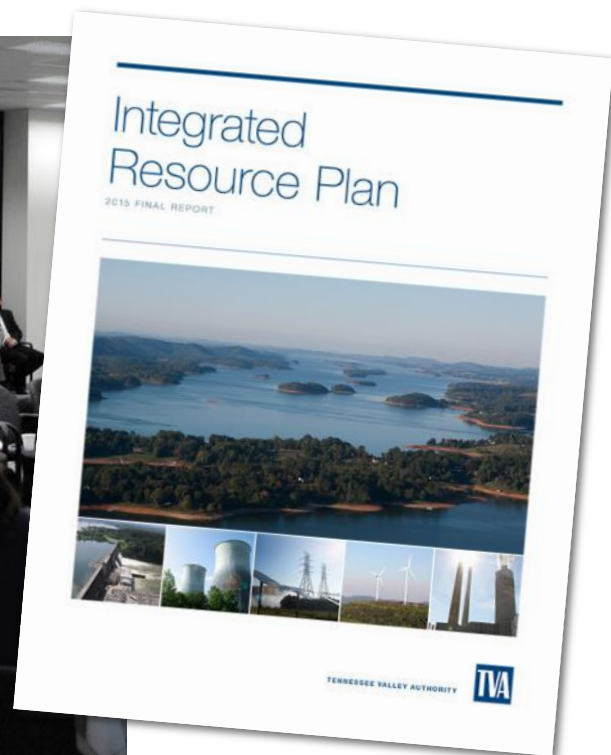
PAF3 & BRF Retired



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Little change in  
coal percentage

# Integrated Resource Plan





# Integrated Resource Plan



For more information visit  
**[tva.com/IRP](http://tva.com/IRP)**

# Energy | **Environment** | Economic Development





# River Management



# Flood Prevention





# Energy | Environment | **Economic Development**





# Continuing Economic Development

## FYTD Results

**25,000 Jobs**

Created or Retained

**\$4.3 Billion**

Capital Investment



## Recent Announcements



Operations Hub  
in Nashville

**5,000 Jobs**

Fulfillment Center  
in Mississippi

**850 Jobs**

# Recent Announcements



Chattanooga

**\$800 MILLION**  
INVESTMENT  
**1,000 JOBS**



# Employees



# Our Mission



To serve the people  
of the Tennessee Valley  
to make life better.



2019

# ENGINEER

OF THE YEAR



# 2019 Engineer of the Year



## Marjorie Parsons

Senior Program Manager, NERC  
Planning Coordinator,  
Transmission & Power Supply



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# Board Meeting

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# Finance, Rates, and Portfolio Committee



# Financial Performance Update

JOHN THOMAS

Executive Vice President  
and Chief Financial Officer



# Q1 Fiscal Year 2019

## **Operating Revenues: \$297M above budget**

- Sales volume 4% more than budget due to weather impacts

## **Interest Expense: \$21M favorable to budget**

- Lower debt rates and less reliance on debt
- Total Financing Obligations (TFO) \$588M less than budget

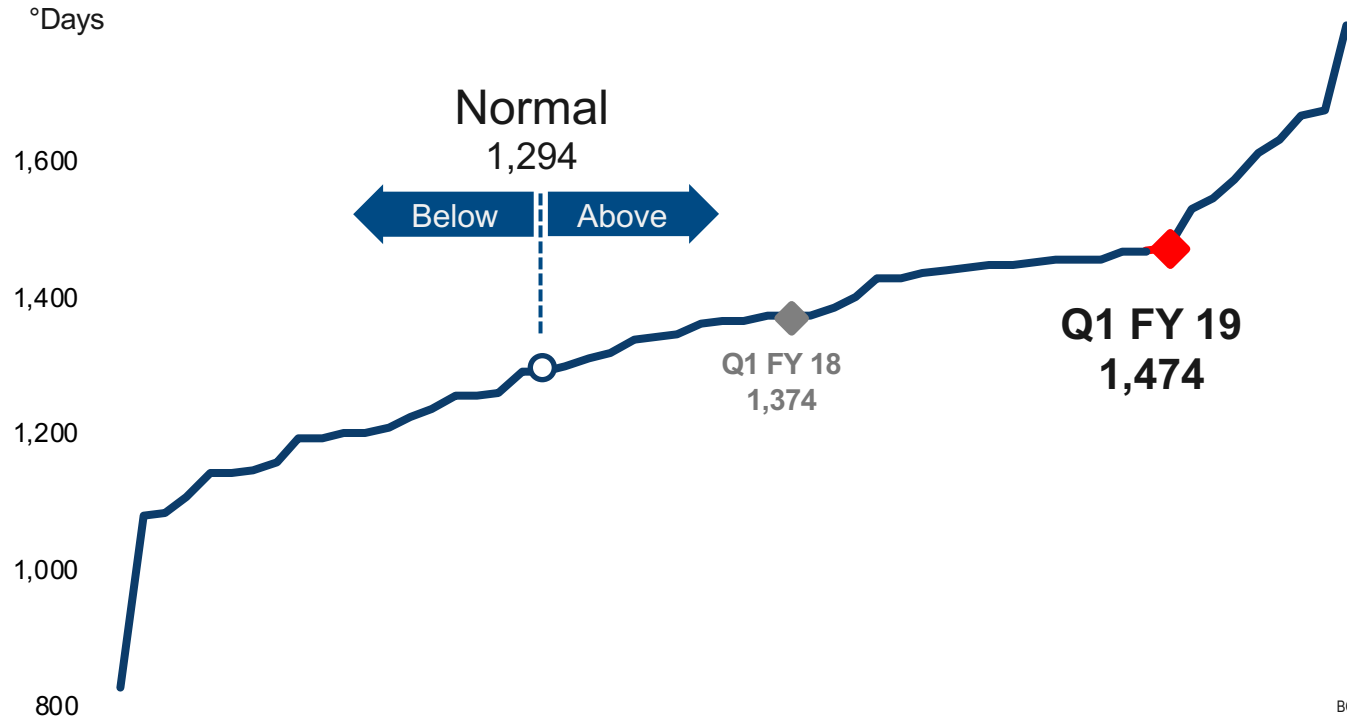
## **Net Income: \$423M**

- \$303M more than budget and \$135M above last year



# Q1 Combined Degree Days Above Normal

Hot Start to October; Colder November with Second Highest Peak



# Q1 Summary Income Statement

\$303M favorable due to operating revenue and lower expenses

\$ million	FYTD 2019			FYTD 2018	
	Actual	Budget	Variance Fav/(Unfav)	Actual	'19 v '18 Fav/(Unfav)
<b>Operating Revenue</b>	<b>\$ 2,725</b>	<b>\$ 2,428</b>	<b>\$ 297</b>	<b>\$ 2,549</b>	<b>\$ 176</b>
<b>Fuel &amp; Purchased Power</b>	<b>738</b>	<b>660</b>	<b>(78)</b>	<b>695</b>	<b>(43)</b>
<b>Total O&amp;M</b>	<b>745</b>	<b>720</b>	<b>(25)</b>	<b>646</b>	<b>(99)</b>
<b>Taxes, Depreciation, Other</b>	<b>517</b>	<b>605</b>	<b>88</b>	<b>598</b>	<b>81</b>
<b>Interest</b>	<b>302</b>	<b>323</b>	<b>21</b>	<b>322</b>	<b>20</b>
<b>Net Income (Loss)</b>	<b>\$ 423</b>	<b>\$ 120</b>	<b>\$ 303</b>	<b>\$ 288</b>	<b>\$ 135</b>

# Q1 Summary Cash Flow Statement

TFOs were \$588M favorable to budget

\$ million	FYTD 2019			FYTD 2018	
	Actual	Budget	Variance	Actual	'19 v '18
Cash Flow from Operating Activities	\$ 502	\$ 442	\$ 60	\$ 626	\$ (124)
Cash Flow used in Investing Activities	(601)	(536)	(65)	(628)	27
Cash Flow from Financing Activities	101	94	7	15	86
<b>Ending Debt and Financing Obligations</b>	<b>\$ 24,387</b>	<b>\$ 24,975</b>	<b>\$ 588</b>	<b>\$ 26,021</b>	<b>\$ 1,634</b>



# Q1 Summary (Results v. Plan)

**Higher Revenues** – Weather impacts increased demand and energy revenue

**Lower Expenses** – Less interest expense and management of O&M costs

**Lower Debt Balance** – FY18 performance driving FYTD 2019 favorability



# Finance, Rates, and Portfolio Committee



A blurred background image showing several people in business attire sitting around a table, writing in notebooks or looking at documents. The image is used as a header for the presentation.

# Asset Portfolio Evaluation

JOHN THOMAS

Executive Vice President  
and Chief Financial Officer



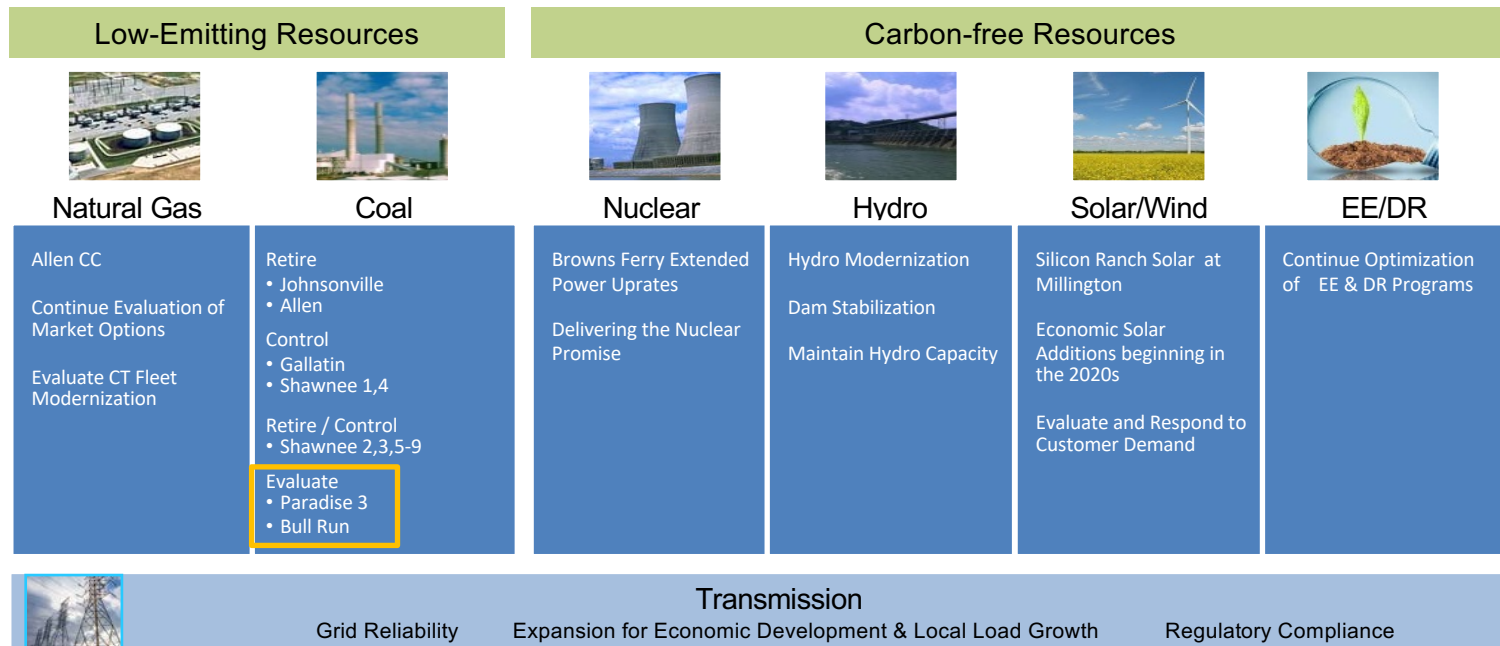
# TVA's Optimal Portfolio

**Cost Effectiveness** – Take a long run, risk-informed approach to least cost planning

**Environmental Stewardship** – Demonstrate our environmental commitment

**Efficiency (Portfolio Fit)** – Provide reliability and flexibility in the portfolio

**Portfolio Diversity** – Provide rate stability by utilizing diverse fuel sources



# Coal Asset Evaluation Components

Economic Evaluation

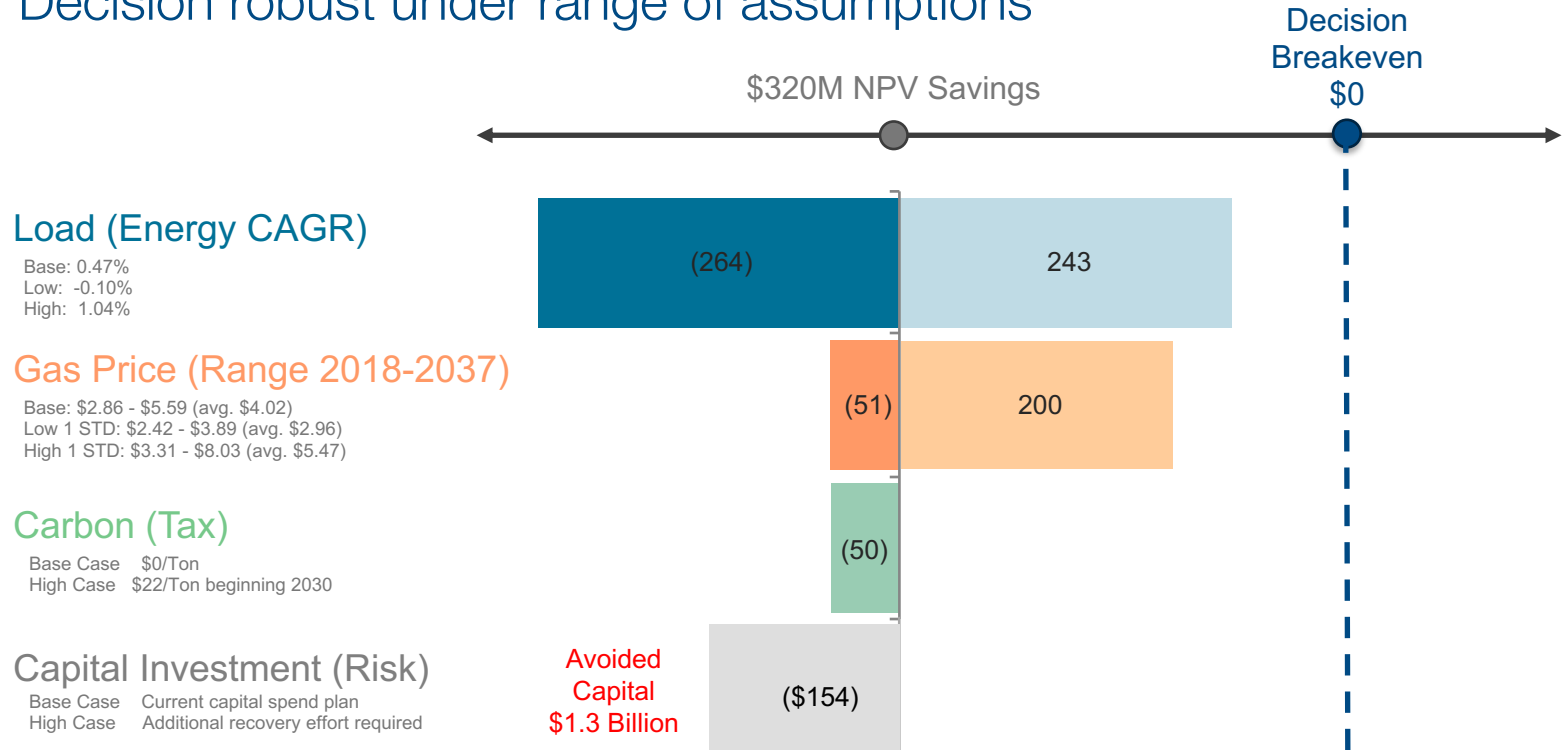
Environmental Assessment

Resiliency: Fuel Security Study

Resiliency: Transmission Study

# Retirement Saves \$320 Million

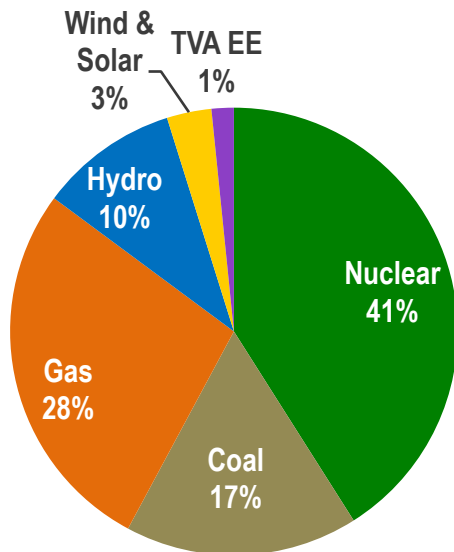
Decision robust under range of assumptions





# Power Supply Remains Diverse

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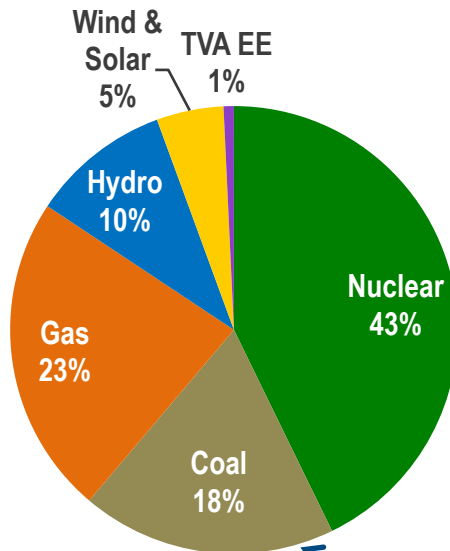


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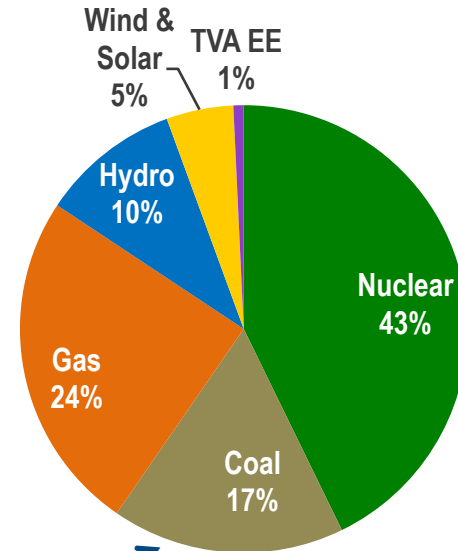
PAF3 & BRF Remain



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**FY28**

PAF3 & BRF Retired



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Little change in  
coal percentage

# Evaluation Summary

**Economic Analysis** - indicates retirement of Paradise Fossil Unit 3 (subject to ongoing rotor inspections) in 2020 and Bull Run Fossil in 2023 are best least-regrets options

**Environmental Assessments** - indicate minor cumulative impacts overall, with negligible or beneficial impacts in all areas except for local socioeconomics

**Fuel Resiliency Study** - indicates that TVA's overall fuel supply position is among the most resilient in the nation and would see minimal material impacts by retiring these units

**Transmission Resiliency Study** - indicates that typical projects required to maintain reliability when a coal plant is retired also support and enhance resiliency of the TVA transmission system

# Asset Portfolio – Recommendation

Based on comprehensive evaluation findings, retire:

- Paradise Fossil Unit 3 and Bull Run Fossil
- Authorize CEO to determine the dates based on TVA's fiscal and operational needs



# Finance, Rates, and Portfolio Committee







# Research & Renewable Projects

JOHN THOMAS

Executive Vice President  
and Chief Financial Officer

# Flexibility Solutions

Request approval of two Flexibility Solutions:

- Flexibility Research Project
- Flexible Renewable Option

# Flexibility Research Project

Onsite and community mid-scale customer solutions:

- Two-year pilot project
- Allows Local Power Companies (LPCs) to provide solutions that address behind-the-meter (BTM) opportunities
- 10 MW or less per solution
- Project capped at 300 MW peak or 100 MW equivalent base-load delivered energy
- Durations of up to 20 years

# Flexible Renewable Option

Offsite, new to the world, utility scale customer solutions:

- This structure was key in successfully recruiting technology companies to the Tennessee Valley
- Ability to aggregate customers, providing the lowest cost option for offsite solutions
- The specific end-use customer/participant incurs any additional cost (least cost planning)
- Quantity limited to 100 MW (equivalent base-load) for existing load, 250 MW (equivalent base-load) for new load
- Durations of up to 20 years



# Flexibility Solutions – Recommendation

Recommend delegation to the CEO authority to approve transactions covered by the Flexibility Research Project and Flexible Renewable Option



# Finance, Rates, and Portfolio Committee



A blurred background image showing several business professionals in a meeting. They are seated around a table, with some holding pens and looking at documents or laptops. The image is in a cool, blue-toned color palette.

# Dual Metering Standard Change & GPP Design Exploration

JOHN THOMAS

Executive Vice President  
and Chief Financial Officer

# Background

In 2007, in response to a requirement of the Energy Policy Act of 2005, the TVA Board considered the net metering standard and, pursuant to its authority under the Public Utilities Regulatory Policies Act of 1978 and the TVA Act, adopted a dual metering standard that:

- Made a dual metered program available to all Local Power Companies (LPCs)
- Was integrated with and implemented through the Generation Partners pilot and later through the Green Power Providers Program



# Proposed

- Adopt a revised standard that separates the standard from any specific program
- Close the Green Power Providers program (GPP) to new applications effective January 1, 2020
- Delegate authority to the Chief Executive Officer (CEO) to provide for the design and implementation of one or more new replacement programs consistent with the terms of the revised standard

*Contingent upon the satisfactory completion of any appropriate environmental reviews.*

# Revised Standard

## Proposed Standard:

Any compensation for electricity produced by an electric consumer from an eligible on-site generation source that is delivered to the local distribution facilities, or otherwise to TVA, may only be made under, and in accordance with, rates, metering, and billing arrangements approved by TVA and determined by TVA to be consistent with its regulatory and wholesale power contract requirements.

# Recommendation

Recommend the Board:

- 1) Approve the revised standard;
- 2) Close the Green Power Providers program (GPP) to new applications effective January 1, 2020, and phase out the GPP program completely as existing contracts with retail electric consumers expire;
- 3) Delegate authority to the Chief Executive Officer (CEO) to provide for the design and implementation of one or more new replacement programs that are consistent with the terms of the revised TVA metering standard.

*Contingent upon the satisfactory completion of any appropriate environmental reviews.*



# Finance, Rates, and Portfolio Committee







# Audit, Risk, and Regulation Committee





# Nuclear Oversight Committee



# External Relations Committee







# People and Performance Committee





