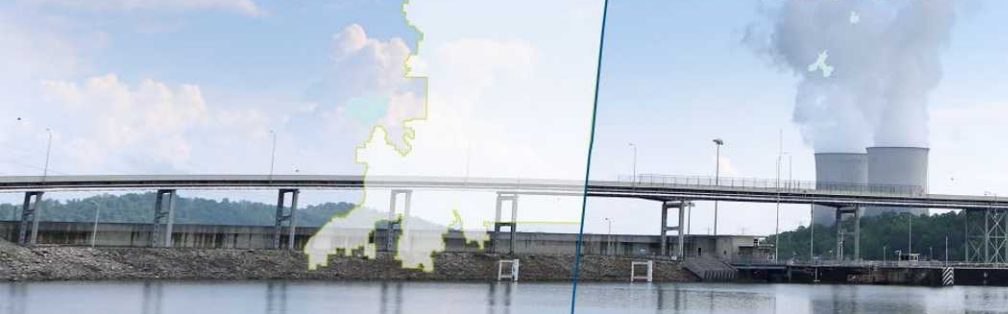

PROJECT PHOENIX

BUILDING THE GENERATION SYSTEM OF THE
FUTURE ON THE LEGACY OF THE PAST

Patrick V. Kiser, PE
General Manager, Strategy & Engineering

03 November 2023





<p>PARTNERING</p> <p>with 154</p> <p>Local Power COMPANIES</p>	<p>TO SERVE</p> <p>10 MILLION</p> <p>PEOPLE</p>	<p>700,000</p> <p>Businesses</p> <p>IN PARTS OF 7 STATES</p>	<p>Directly Serve</p> <p>60</p> <p>LARGE industries & federal installations</p>
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Delivering on TVA's Mission – Past, Present, and Future

SINCE ITS INCEPTION, TVA HAS INNOVATED FOR THE VALLEY



1933

TVA ACT
SIGNED

1940s

HYDRO

1950s

FOSSIL

1960s

NUCLEAR

1970s

PUMPED
STORAGE &
GAS



2020+

TVA'S ENERGY SYSTEM OF THE FUTURE

TVA'S
FIRST
90
YEARS



Largest Public Power Provider
in the United States



3rd Largest Electricity Generator
in the Nation based on total electric generation in 2019



Nation's 2nd Largest Transmission System
in high voltage lines among the Nation's Utilities



3rd Largest Nuclear Fleet
in the Nation providing over 40% of TVA's energy



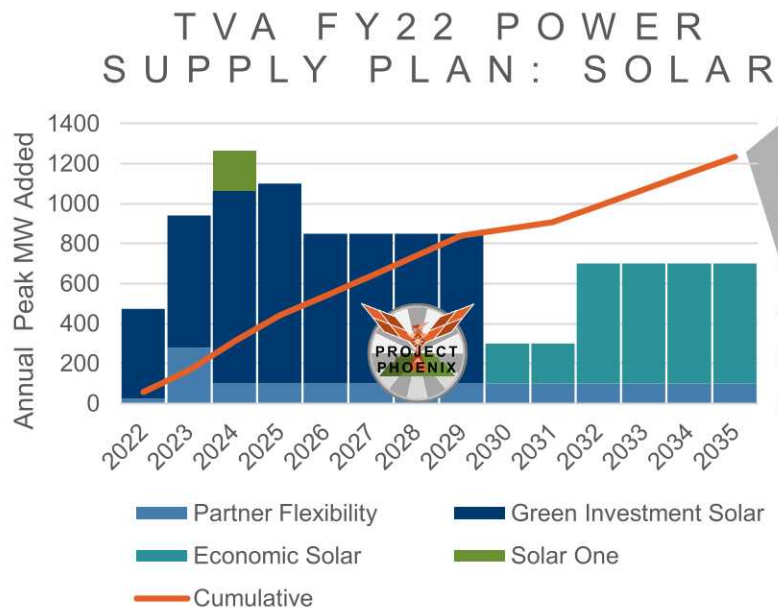
Manages 5th Largest River System
in the U.S

**BUILDING FOR THE
NEXT 90 YEARS**

Today and in the future, the Valley needs **affordable, reliable, resilient, and carbon-free energy** to fulfill our mission as stewards of the **environment** while driving **economic development**.

**INNOVATING FOR THE
PEOPLE OF THE VALLEY**

TVA's Solar Generation Goals



Graph represents energy, forecasts are based on the FY22 Budget Power Supply Plan

TVA SOLAR GOALS

Conventional solar generation is land intensive at

10 acres per MW

(estimates from TVA Solar Strategy)

TVA Goal: 10 GW by 2040

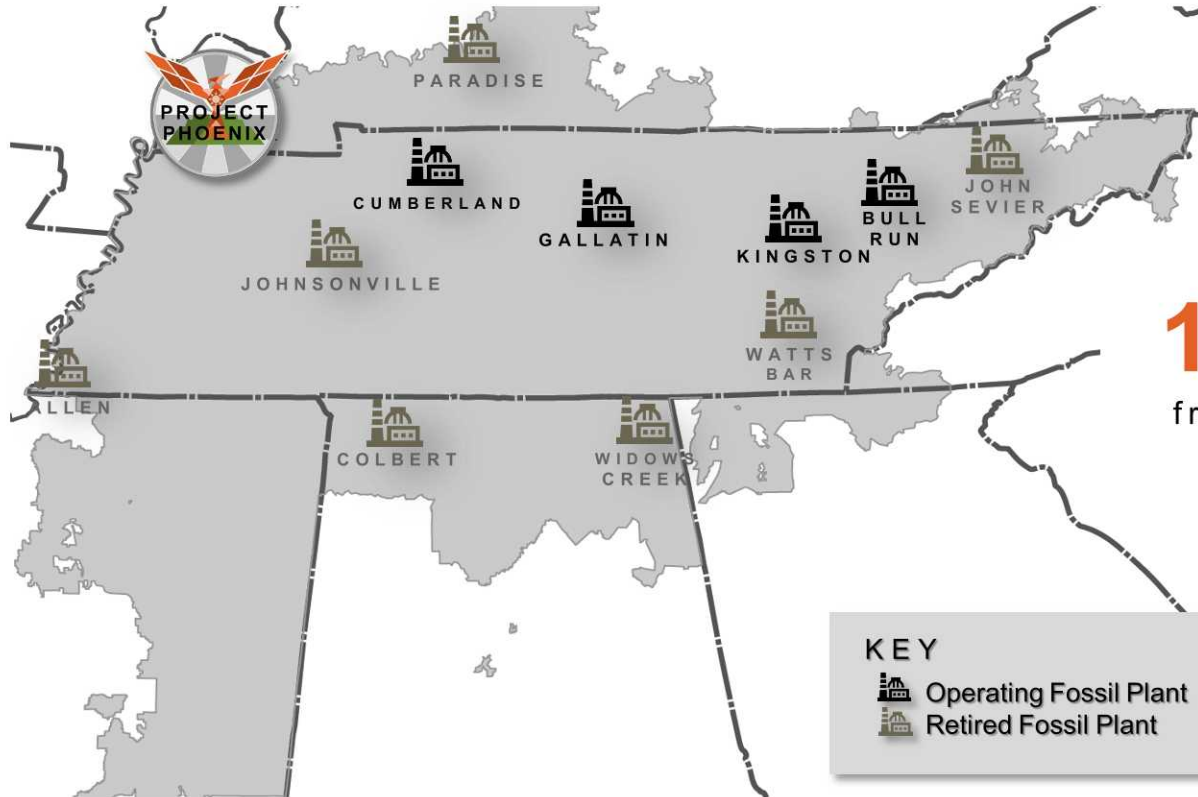
= 10,000 MW = 100,000 acres

= 156 square miles



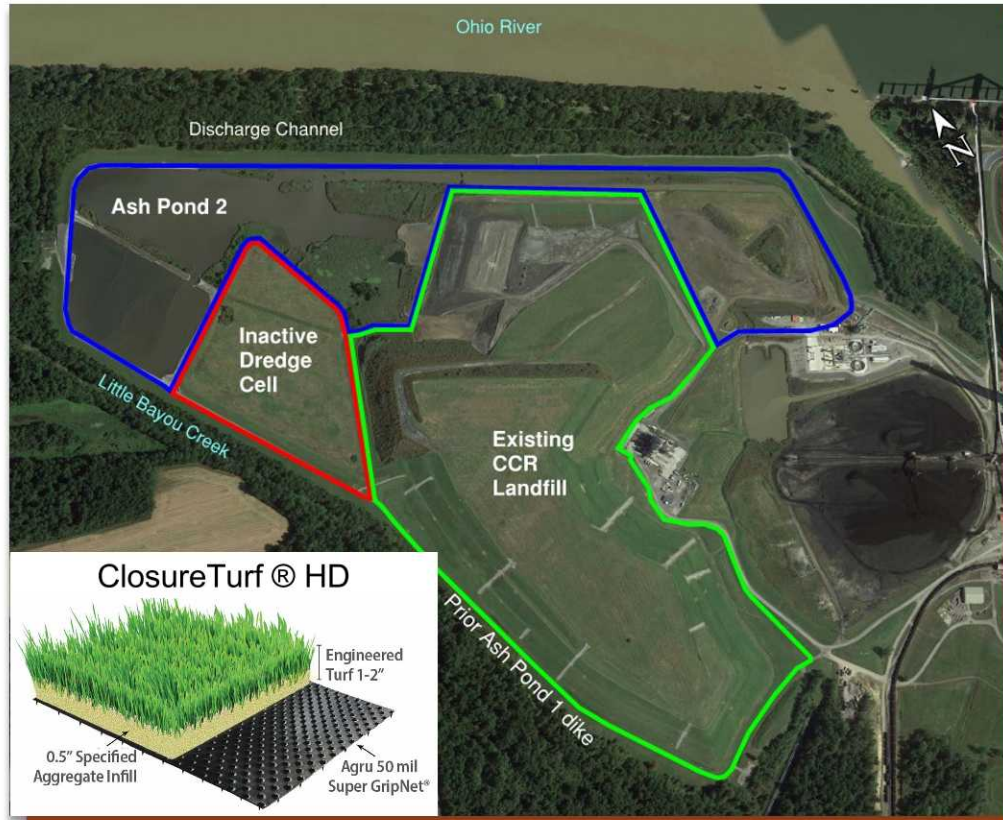
Strategic Solar Development at TVA CCR Facilities

EVOLVING WITH CHANGING REGULATORY REQUIREMENTS AND TVA ASSET STRATEGY



Estimated
1,000+ MW
from closed CCR facilities

Closure of SHF Ash Pond 2 and Solid Waste Landfill



Project Details

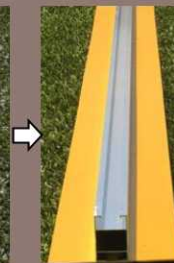
- Closure of existing CCR Landfill, Inactive Dredge Cell, and Ash Pond 2
- Mass grading to achieve design grades and flatten slopes for long term stability and maintenance (~4M cy)
- Utilization of ClosureTurf® to significantly reduce off site borrow needs and long-term maintenance costs
- Potential for Solar Generation

Project Phoenix Overview

REDEVELOPING A TVA BROWNFIELD FOR SOLAR GENERATION



Friction Strip



Embedded Rail Attachment



PowerCap™

The PowerCap™ solar installation will maximize solar density, generating approximately 100 MW across 300 acre closed CCR Site

Project Phoenix – PV System Layout

REDEVELOPING A TVA BROWNFIELD FOR SOLAR GENERATION

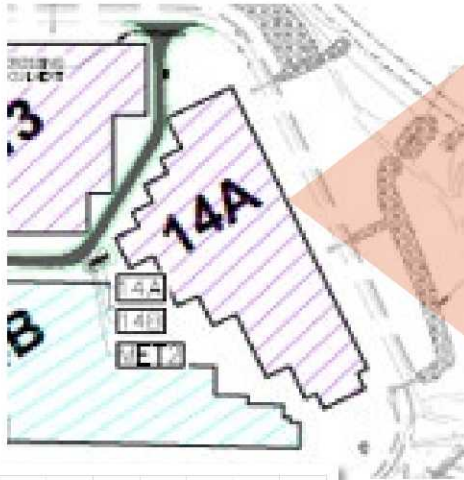


System Details

- System Output: ~ 114 MW DC / 99 MW AC
- PowerCap™ Racking System
- ~ 240,000 Panels (Total)
 - ❑ LG Panels in Inventory
 - ❑ Framed Panels Frameless Panels
- Step up from 34.5kV collection voltage to 161 kV for distribution
- Exploring Potential Future Companion Battery Energy Storage System

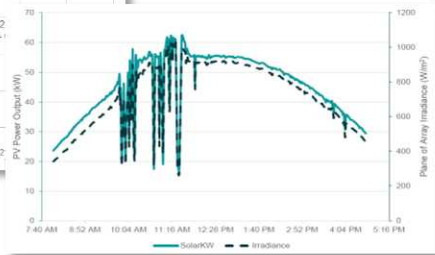
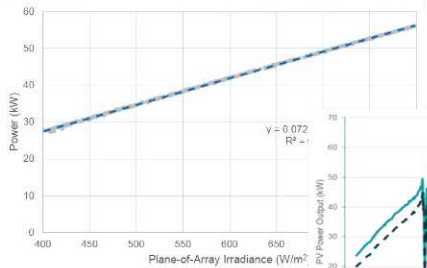
Project Phoenix

SOLAR DEMONSTRATION ARRAY



Objectives

- Verification of modeled system generating capacity
- Information to optimize design
- Optimization of installation processes and procedures





Project Phoenix

SOLAR DEMONSTRATION ARRAY



Solar Demonstration Detail Views

Project Progress



Late April 2023

- ClosureTurf® installation in progress
- Preparing to continue geosynthetic liner installation in the foreground
- Site grading in the background (right)

Project Progress



July 2023

- Constructing the solar demonstration array in the foreground
- Installation of geosynthetic liner ahead of ClosureTurf® in the background
- Grading in the background (left)

Project Progress



Late July 2023

- Completed solar demonstration array
- Verification of design assumptions
- Collection of data to optimize design

Project Progress – August 2023



Project Progress



October 2023

- Final grading in the former pond area in the foreground
- Liner and engineered turf placement in the background





SHAWNEE Potential Solar Development

309 acres • closure turf • 100MW power cap



TVA

**TENNESSEE
VALLEY
AUTHORITY**