



Smoky Mountains Mobility Conference

TVA's Connected Communities Initiative

October 2024



Agenda

- Connected Communities Initiative Overview
- Community Partnership Offering
- Pilot Project Support
- Related TVA Initiatives
- Next Steps

Meet Today's Speaker



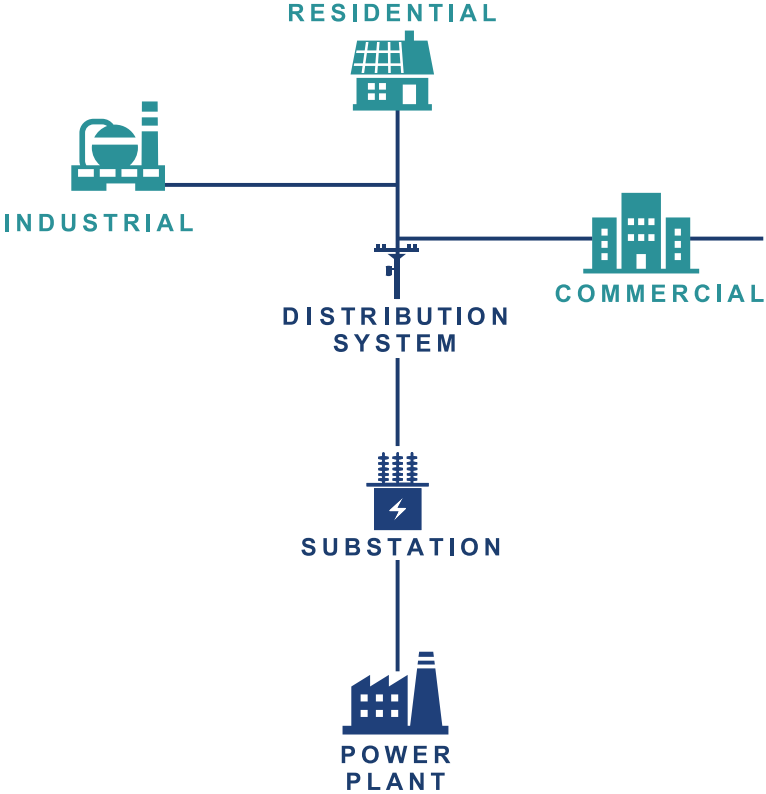
Georgia Caruthers

Senior Project Lead –
Connected Communities, TVA

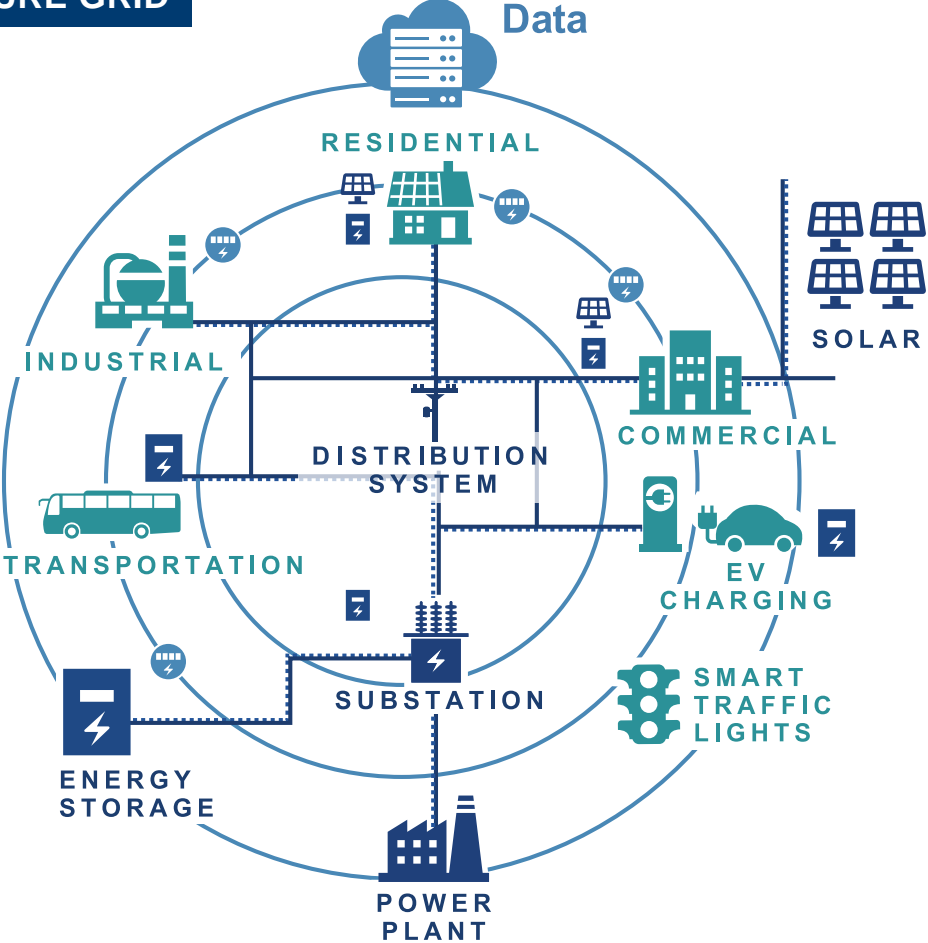
Connected Communities Initiative Overview

Traditional Vs. Future Grid

TRADITIONAL GRID



FUTURE GRID



Community Involvement is Needed



Electric Vehicles

Expanding charging infrastructure, electric mobility options and awareness of benefits.



Battery Storage

Increasing use of battery storage for resilience and added flexibility.



Distributed Generation

Installing solar panels on homes, businesses and at utility scale.



Demand Response

Increasing opportunities for consumers to use less energy when demand is high, for system stability.

Accelerating Progress and Overcoming Challenges

The **Connected Communities initiative** helps communities embrace technology and data solutions to overcome their challenges and prepare to be part of the energy system of the future.

FOCUS AREAS



Broadband and Digital Literacy



Economic Empowerment



Energy and Environmental Justice



Enhanced Community Resiliency

RESOURCES



Community Information Hub and Website



Tailored Support and Success Coaching through Partnerships



Pilot Project Funding

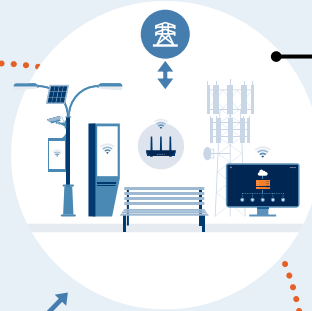
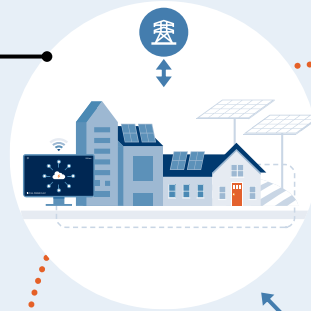


Network to Share Information and Success Models

Helping Communities Pursue Opportunities

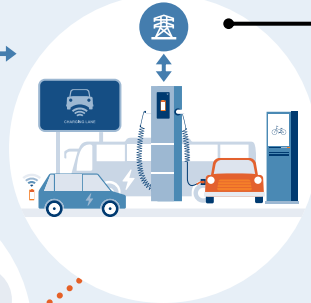
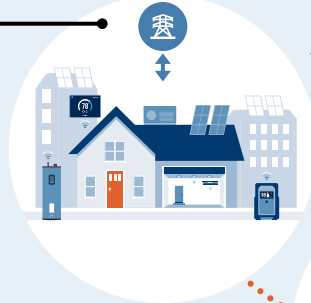
Community Energy

- Community Solar
- Microgrids
- Smart Energy Community
- Distributed Solar



Building Energy

- Grid-Interactive Efficient Buildings
- BTM Battery Storage
- Connected Lighting
- Smart Heating
- Building Thermal Storage
- Smart Ventilation
- Smart Windows and Glass



Connectivity

- 5G
- Wi-Fi 6
- Public Wi-Fi Kiosks
- Smart Poles
- Edge Computing

Transportation

- **EV Charging**
- **EV Public Transit**
- **Roadway Electrification**
- **Advanced Shared Mobility**

Agriculture

- Agrivoltaics
- IoT for Farming



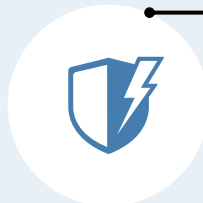
Economic Development

- Workforce development programs aligned with clean energy innovations and evolution



Resiliency*

- Plans and Training for Natural Disasters and Cybersecurity
- Communication and Emergency Response Systems
- Emission-Free Generation with Storage
- Resilience Hubs



Analytics

Water

- Smart Water Management
- Smart Wastewater Management

Energy

- Energy Load Disaggregation
- Building Energy Modeling

Municipal

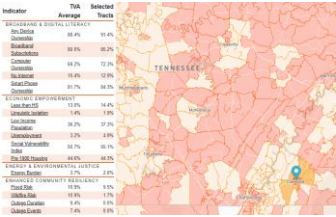
- Digital Twin Modeling

*Projects in most areas shown here will help create a more resilient energy system

Community Partnership Offering

Support Varies Based on Community Priorities

The team provides flexible support tailored to communities' needs through a yearlong partnership. We identify and support priorities through the lens of the four initiative focus areas.



Case Study: Chimney Rock, North Carolina

Location: Chimney Rock, North Carolina
Population: 220

Background: Community developed network to replace broken existing facility and build on "Water Palace" now owned by local business.

Details: Chimney Rock Community Development Association leveraged \$20,000 in state funding to generate over \$17 million in local private investments.

Results: More accessible over previously closed public access points.

Case Study: Bradford, Vermont

Location: Bradford, Vermont
Population: 1,100

Background: After winter storm from midwest left local business operations at a standstill, community developed plan to build on local assets and create new jobs.

Details: The town in this region is a community that has worked to create a resilient economy. They are a small town with a strong sense of community and a focus on local business.

Results: Through its partnership with EPA and CO₂ Emissions, the community has been able to create jobs and improve the local economy. The town has been able to create jobs and improve the local economy. The town has been able to create jobs and improve the local economy.



Inflation Reduction Act Community Change Grants

Eligible Activities:

- Climate-focused grant issued by Environmental Protection Agency (EPA)
- \$10-20 million opportunity (estimated)
- No cost share

Why is Bedford County pursuing this grant opportunity?

- Attract employees with high quality, climate-focused training / workforce
- Improve facility with program / jobs / input improvements
- Enhance energy efficiency of existing buildings

Defining the Workforce Development Program (1/5)

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Workforce Development Approach	21
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PARTNERSHIP IN ACTION

STEP 1 Assess Conditions & Needs

Gather and review data to understand current conditions and areas for potential improvement.

STEP 2 Engage Key Stakeholders & Set Goals

Identify and assemble key local stakeholders to set vision and prioritize goals for partnership.

STEP 3 Navigate Opportunities & Resources

Conduct research and share case studies and insights to guide and inspire.

STEP 4 Workshop Potential Solutions

Conduct 1-2 broader stakeholder workshops to share experience and explore solutions for priority topics.

STEP 5 Target Funding & Prepare to Pursue

Review funding opportunities aligned to priorities. Support initial framing for funding pursuit / create blueprint for action.

STEP 6 Establish Path Forward

Prepare report to document outcomes and action plan to guide ongoing progress.

Community Partnerships – Outcomes



Identified Funding Pathways

Communities have improved access to **potential funding sources**, are connected with financing entities and are supported in time-sensitive funding pursuits.



Enhanced Project Concepts

Communities receive support to **develop, structure, and advance project concepts** based on both new ideas and existing project concepts.



Strengthened Collaboration

Participating communities often find that the engagement process results in **improved communication and collaboration** between local entities.



Improved Fluency in Energy Topics

Communities complete the partnership with a better understanding of how to navigate and discuss economic development and funding pathways **related to the rapidly changing energy landscape**.

Community Partnerships – Recruiting Round 2



- Round 1
- Round 2

Key Mobility Themes Arising From Partnerships



Lack of Electric Mobility Knowledge

Communities are open to electric mobility opportunities but lack a foundational understanding of electric vehicle infrastructure.



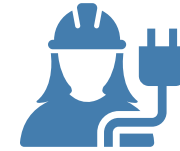
Range Anxiety and Lack of Urgency

Rural leaders are hesitant to invest resources in electric vehicle infrastructure amid concerns about battery range and a general sense of low demand for EVs in their communities.



Transportation Options a Barrier

The high cost of automobile ownership and limited transportation options are barriers to school and employment participation, particularly in rural areas. There is an opportunity for electrified transportation solutions.



Electric Vehicles Drive Workforce Needs

With electric vehicle manufacturing booming across the region, community leaders are eager to establish EV-related workforce programs.

Bedford County – Holistic Community Enhancements

The Connected Communities team supported Bedford County in developing a grant response with a strong emphasis on improving mobility locally and capturing opportunities related to advanced mobility.

MOBILITY



Streetscape Improvements

Improve pedestrian and bicycle infrastructure to enhance resident access to employment, retail and entertainment.



EV Manufacturing Training Module

Advanced manufacturing workforce training integrating electric vehicle manufacturing (including both automobiles and aviation).

NON-MOBILITY



Affordable Housing Enhancements

Energy efficiency upgrades in public housing.

Pilot Project Support



Pilot Projects

Connected Communities pilot projects engage community stakeholders to identify and test new technology applications and solutions.



Pilot Projects – Approach and Outcomes

The Connected Communities initiative identifies innovative pilot projects using two methods, both aimed at testing new technology applications and solutions.



Competitive Selection

Open solicitations for pilot proposals from organizations throughout the Valley which are evaluated competitively through a formalized, replicable process to distribute innovation funding.



Strategic Selection

Support for compelling in-progress, community driven projects to enable quick wins, advance TVA's strategic goals and provide support for already engaged communities.

OUTCOMES TO DATE

23

Projects
Funded

14

Case Studies
Developed

90+

Organizations
Engaged

Pilot Projects – Goals



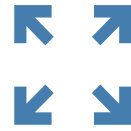
Develop Evaluation Process

Replicable process for identifying and evaluating potential community projects for funding is developed.



Test Innovative Solutions

Community barriers to testing innovative solutions are overcome and local expertise is built.



Identify Scaling Solutions

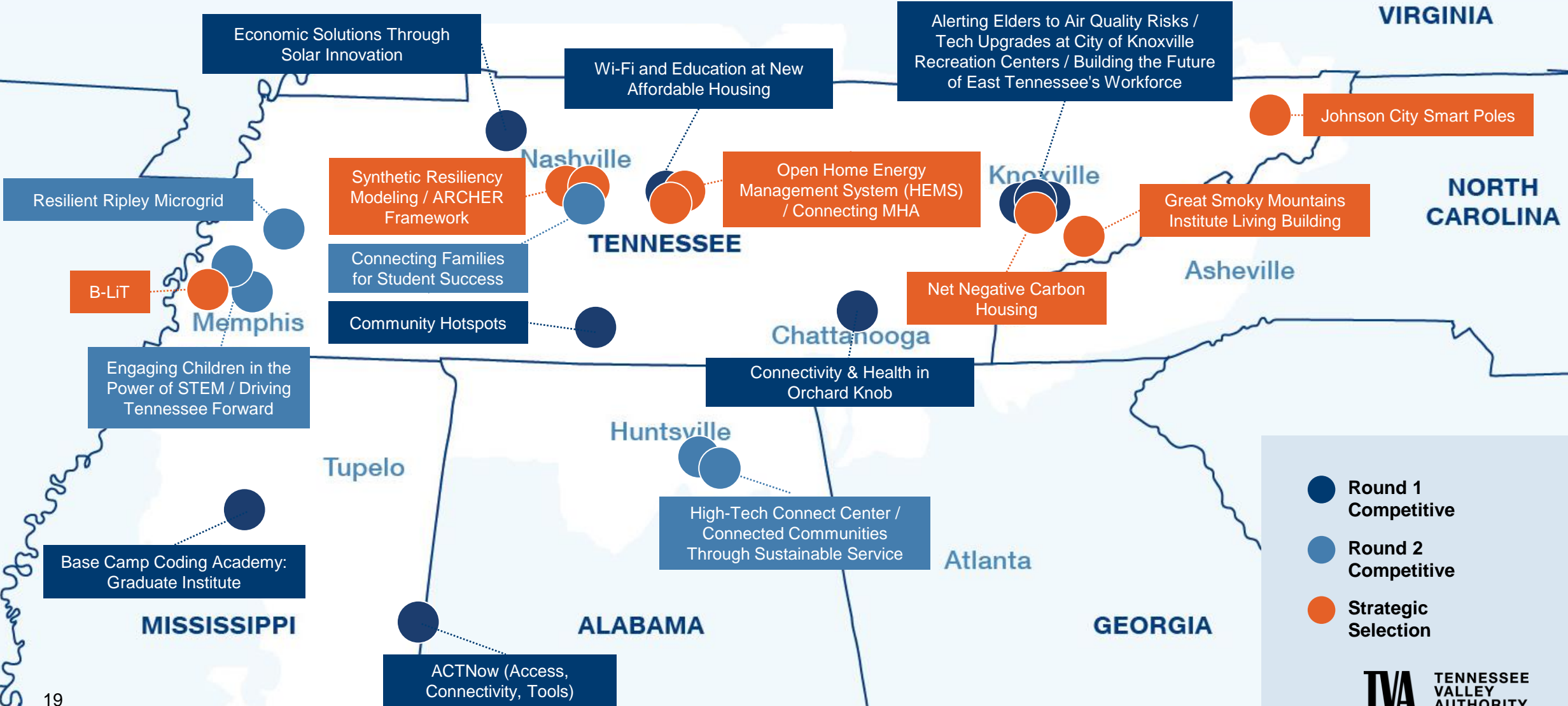
Solutions for scaling that originate from “boots on the ground” experience are identified.



Enable Knowledge Sharing

Knowledge sharing across the Valley is enabled through published case studies and lessons learned.

Pilot Projects – Portfolio



- Round 1 Competitive
- Round 2 Competitive
- Strategic Selection



Driving Tennessee Forward – Project Plan

BUDGET

\$950K

Project Total

\$664K

From TVA

\$286K

Project Team Match

PROJECT PLAN



Driving Tennessee Forward – Project Goals

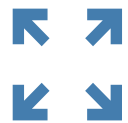
Boost accessibility to clean energy and electric vehicle (EV) charging infrastructure and provide workforce opportunities for the entire Memphis community.

GOALS



Training and Trade

Create opportunities for students interested in EV charging station installation and maintenance.



Project Expansion

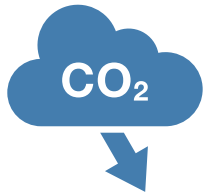
Identify program scalability throughout Tennessee and beyond.



Additional Opportunities

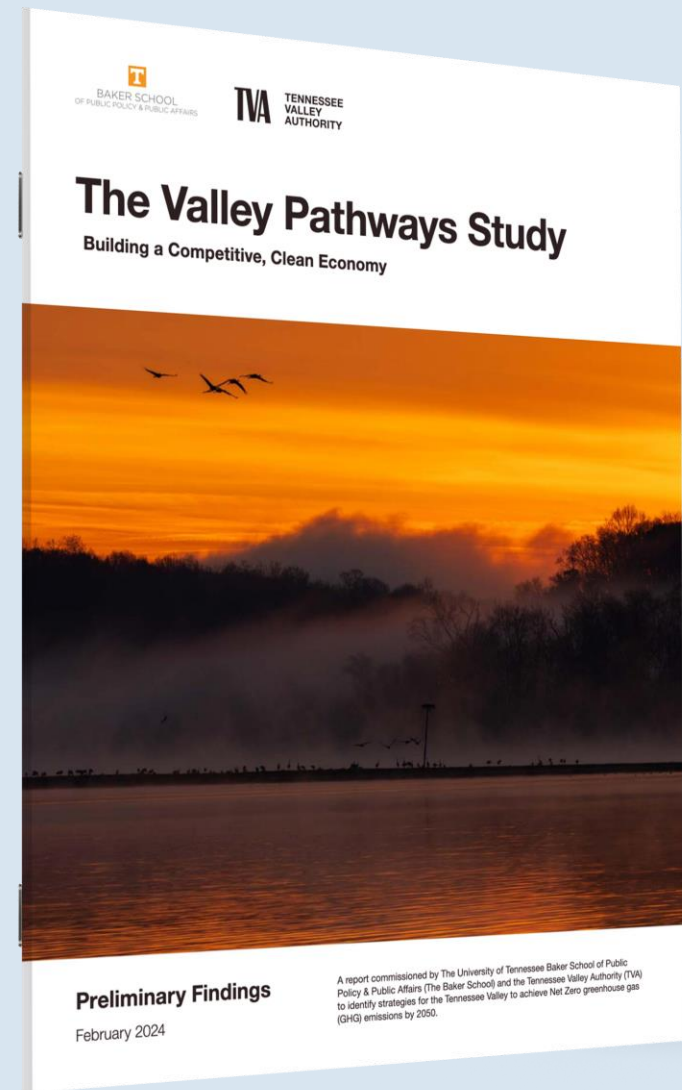
Develop more robust program offerings as STCC considers adding faster, Level 3 charging stations.

Related TVA Initiatives



The Valley Pathways Study

A landmark study to assess carbon emission levels across major economic sectors and identify opportunities for achieving a clean, sustainable future.



Valley Pathways for a Competitive, Clean Economy



Economy-Wide Stakeholders

Partnership study with UT Baker School and diverse Valley-wide, economy-wide stakeholder group to conduct a first of its kind study exploring how to get to net zero by 2050.



Greenhouse Gas Emission Baseline

Established a Valley and economy-wide Greenhouse Gas emission baseline.



High Level Model Results

Developed and conducted analysis on Pathways, scenarios to achieve net zero by 2050.



Actionable Plan to Accelerate Transition

Identified critical actions, across all economic sectors, that are foundational for a competitive, clean economy.



2025 Integrated Resource Plan (IRP)

The 2025 draft comprehensive plan shapes TVA's energy system through 2050 and is informed by public and stakeholder engagement.



IRP: Meeting TVA's Current and Future Energy Needs



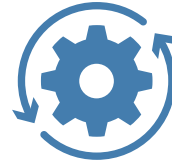
Strategy and Scenario Models

This plan models five strategies and six scenarios to generate 30 unique potential resource portfolios. All scenarios project increased EV energy usage.



EV Energy Demand Forecast

EV adoption is a key driver of load change – EV energy demand forecasted at 22,002 GWh by 2050.



Need for Replacement of Resources

New capacity is needed in all scenarios to replace retiring and expiring capacity, support economic growth and enable electrification.



Public Comment Solicitation

The 2025 draft IRP is currently actively soliciting public comment.

Next Steps

Let's Stay Connected



Continue the Conversation

Contact Georgia Caruthers to learn more:

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Or

ConnectedCommunities@tva.gov



Join Our Connected Communities Network

Visit the Connected Communities website and sign up to be part of the Connected Communities Network:

tva.com/connectedcommunities



Access Our Resources

Access the Community Information Hub, relevant guides and free monthly webinars:

- [Community Information Hub](#)
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