Bipartisan Infrastructure Law - SECTION 40101(d)

PREVENTING OUTAGES AND ENHANCING THE RESILIENCE OF THE ELECTRIC GRID

Commonwealth of Kentucky
August 9, 2022

Program Narrative

Introduction

Increasing numbers of severe weather events pose new and significant challenges for grid resilience. Over the past five years, Kentuckians and our infrastructure have experienced 10 major disaster declarations, encompassing a global pandemic and unprecedented flooding and tornado events, resulting in devastated communities and families. These recent events illustrate the importance of maintaining and restoring life-sustaining electricity to Kentuckians and to those facilities providing essential services during and after disasters.

Within each community exists critical facilities and infrastructure that ensure essential community services or lifelines[1] remain functioning when a disruptive event occurs. For these essential services to remain operational and functioning, the electricity systems that serve these them must be able to anticipate, withstand and recover from natural and man-made disruptive events. Stated another way, these critical facilities and infrastructure must become more resilient.

More formally, resilience is the ability of Kentuckians and their communities to anticipate, accommodate, positively adapt to, and recover to existing or elevated functioning amidst changing conditions and hazardous events. Citizens who live in resilient communities enjoy a high quality of life, reliable systems, and increased economic vitality. They also conserve resources for present and future generations. Essential to this resilience within a community, are the critical facilities and infrastructure that serve Kentuckians.

Regionally in Kentucky, state parks have served as critical community centers and emergency response facilities during disaster response and recovery. In Kentucky, state parks have been used during the pandemic response for first responder housing and non-congregate sheltering, and also during the devastating tornado and flooding events, survivors were able to seek refuge at state park locations. They are the basis for regional resilience. However, these parks have been challenged at times to be able to provide reliable power and basic services during these events, thereby compromising the social stability of the surrounding communities.

In addition to state parks, public power utilities and electric distribution cooperatives in Kentucky share characteristics that lend themselves to developing community-based energy resilience projects. These utilities are not-for-profit and are either community or member owned. These utilities are built by and belong to the diverse communities and consumer members that they serve.

[1] https://www.fema.gov/emergency-managers/practitioners/lifelines

Therefore, the Commonwealth foresees a potential three step approach to use the resources offered by section 40101(d) of the BIL to enhance resilience in Kentucky: improve resilience at state-owned facilities that are key to supporting disaster survivors in the aftermath of such events; providing essential assistance to small municipal electric utilities that are in high risk areas or have recently been affected by a disaster; and helping improve reliability of distribution cooperatives in high risk areas or that have suffered recent disaster effects.

Leveraging Kentucky's energy strategy and the experience of the Kentucky state energy office within the Kentucky Energy and Environment Cabinet, as lead response agency for energy disaster events, the methodology outlined in this narrative increases the capacity for resilience at our highest risk communities, strengthens the reliability and safety of our electricity systems at risk, and enables under-resourced and under-served communities to work collaboratively with electricity system providers to mitigate energy vulnerabilities at critical facilities, while increasing local investment and job opportunities.

Objectives and Metrics:

Governor Andy Beshear, on October 20, 2021, in collaboration with the Energy and Environment Cabinet (EEC), announced Kentucky's energy strategy for a transitioning energy landscape. The strategy is known as *KYE3: Designs for a Resilient Economy*. KYE3 is an energy strategy wrapped in economic development and focused on resilience. KYE3 stands for energy, environment, and economic development - three issues that are inextricably linked. KYE3 represents a long-term strategic vision for Kentucky's energy landscape and articulates overarching goals and objectives.

Coupled with KYE3 is an understanding that Kentucky's electricity landscape and regulatory structure are essential for guiding resilience investment decisions and developing a planning framework for resilience to address all-hazards, including future climate implications. The Kentucky Public Service Commission (PSC) oversees and regulates three investor-owned utilities and two generation and transmission electric cooperatives, along with their 19 associated distribution electric cooperative members. Entities not regulated by the PSC, include five Tennessee Valley Authority distribution cooperatives, 27 municipal electricity providers, and six state owned distribution systems serving critical facilities. In addition, five regulated utilities in Kentucky actively participate in two regional transmission organizations, Midcontinent Independent System Operator (MISO) and PJM Interconnection (PJM).

KYE3 begins with Kentucky communities. A priority of KYE3 is to prioritize communities with heightened infrastructure risk with the following goals:

- Ensure the resilience of community critical facilities
- Leverage federal funding for community resilience
- Support sustainable community development
- Assess climate and manmade risks

In the simplest terms, the community approach outlined in KYE3 provides the basis of forming resilience hubs throughout the Commonwealth. The Urban Sustainability Director's Network offers a summary definition of resilience hubs that is used in this application and has been adopted with variation for use here.[2]

[2] http://resilience-hub.org/what-are-hubs/ (accessed August 2022)

A resilience hub is conceptualized as community-serving facilities augmented to support residents, coordinate communication, distribute resources, and operate sustainably with a low environmental impact while enhancing quality of life. Resilience hubs meet a myriad of physical and social goals by utilizing a trusted physical space such as state parks, community centers, recreation facilities, or multi-family housing buildings, as well as the surrounding infrastructure, such as a vacant lot or local business.[3] Central to the idea of resilience hubs is the provision of safe, reliable, sustainable, and affordable power.

Among the overarching goals of KYE3, the four most applicable to aiding in the establishment of objectives and metrics for Section 40101(d) are: (1) Working with communities with infrastructure risk, (2) Building the next generation infrastructure, (3) Developing a sustainable workforce, and (4) Leading by example.

Therefore, a key aspect to the objectives and metrics identified below is the concept of creating or building the capacity of resilience hubs as it relates to the under-resourced communities and vulnerable populations across the Commonwealth. Each objective, when accomplished in a strategic area of Kentucky, creates the capacity for a resilience hub to form, as the community works together to mitigate vulnerabilities with critical facility interdependencies.

The following is a summary of objectives and metrics identified that create the capacity for resilience hub formation. These are provisional, pending further discussion and considerations with stakeholders, as resilience situational awareness evolves over time. Each metric will be utilized in either project selection, as part of contractual reporting obligations, or as part of program technical assistance and administrative functions.

Objective	Metrics	Measure
Improve the safety and reliability of the electric grid serving either critical facilities or under-resourced communities and vulnerable populations, which are at heightened risk from all hazard types, including those which have been subject to recent natural disasters	• Safety standard compliance rate of the electricity grid assets serving target facilities, communities, or populations • Frequency and duration of outages (SAIDI and SAIFI) of targeted grid circuits or facilities	• Y/N safety standard compliance as reported by funded entities • SAIDI and SAIFI number as reported by serving utility
Increase the resilience capacity of critical infrastructure, including critical facilities at a heighted risk from all hazard types and their ability to participate as part of broader regional or local resilience hub	• Level of preparedness and risk understanding of critical infrastructure operator • Completion of electric grid asset inventory at heighted risk from all hazard types • Completion of an all-hazards mitigation plan for identified assets, including a cost	• Qualitative or Y/N of completion of task by funded entities or contractors

[3] http://resilience-hub.org/core-components/ (accessed August 2022)

	effectiveness evaluation of each measure or a community benefit evaluation	
Expand local workforce capacity to provide grid resilience services	• Number of jobs created by funded project • Provision of information regarding union labor laws • Use of local hire agreements and appropriately credentialed workforce providing grid resilience services • Use of small or minority owned businesses for grid related resilience activities • Number of coordination and outreach activities with Kentucky Education and Labor Cabinet and the Kentucky Community and Technical College System	• Quantitative and qualitative as reported by contractor or project administrator
Increase the resilience capacity of under resourced communities and vulnerable populations at a heightened risk from all hazard types through increased access to regional or local resilience hubs by funding projects for small entities and state facilities that serve critical roles during natural disasters	• Level of risk awareness and preparedness of under resourced communities and vulnerable populations • Number of outreach activities to targeted audiences regarding resilience resources and services • Distance and access to community resilience hubs, or regional resilience hubs	• Qualitative and quantitative as reported by administrative and technical assistance personnel

Criteria:

Small Entity Set Aside:

Using 2019 data from the *Annual Electric Power Industry Report*, Form EIA-861, the following utilities provide greater than 4,000,000 megawatt hours of sales to all meters served by those utilities.

- Kentucky Utilities Company
- Louisville Gas and Electric Company
- Kenergy Corp.
- Kentucky Power Company
- Duke Energy Kentucky, Inc.

These five utilities serve approximately 1,311,008 meters or 56.8 percent of the meters served in Kentucky. Year 2019 data is chosen for analysis due to impacts and potential skewing of sales data at 2020 and beyond due to COVID-19.

Because these larger entities have access to private resources in the case of the investor-owned utilities, a more robust customer base for financial stability, greater ability to access other federal BIL grid resilience programs, and given the limited allocation amount provided to Kentucky under this program, the state will be allocating all of its available Section 40101(d) funding to state-owned distribution systems at state parks serving critical facilities and eligible entities that provide less than 4,000,000 megawatt hours.

Project Selection Criteria:
Projects selected for funding will be evaluated using, but not limited to and subject to further development, the following selection criteria.

1. Does the project fall within a heightened risk area, using the FEMA National Hazard Risk Index?

   The National Risk Index is a dataset and online tool to help illustrate the United States communities most at risk for 18 natural hazards. The Risk Index includes three components: a natural hazards component (Expected Annual Loss), a consequence-enhancing component (Social Vulnerability), and a consequence reduction component (Community Resilience)[4]. *See the Kentucky Energy Infrastructure Hazard Risk Awareness Tool, which combines the FEMA Risk Indexes with Kentucky Electricity Infrastructure as Community Characteristics[5].*

2. Does the project support geographic areas that have been impacted by a local, state, or federal declared natural or man-made disaster event within the last five years[6]?

   Eligible projects should be able to show that the infrastructure targeted has been impacted historically by natural or man-made events at a scale or frequency that subjects the surrounding populations to significant adverse impacts.

3. Does the project improve the safety or reliability of the electricity system?

   Eligible projects should be able to illustrate the current and anticipated safety improvements, using known safety standards in place for the power sector and ensure projects meet local, state, and federal codes. In addition, using System Average Interruption Duration Index (SAIDI) and System Average Interruption Frequency Index (SAIFI) or equivalent data, demonstrate that the project's geographic scope includes areas that suffer from increased frequency or duration of outage events compared to for example the average 5-year SAIDI or SAIFI or equivalent measure.

4. Does the project show improved environmental sustainability?

[4] https://hazards.fema.gov/nri/ (accessed August 2022)
[5] https://experience.arcgis.com/experience/318dad3c6ca14761b93b309a02c7a646
[6] https://www.fema.gov/disaster/declarations (accessed August 2022)

Eligible projects should demonstrate the environmental sustainability of the project by calculating - if applicable - reduced emissions, use of recycled materials, reduction in waste generation or discharge, sourcing of local materials, supplies and labor, and conservation of natural resources.

5. Does the project have the ability to serve or support a regional or local resilience hub, or show alignment with Kentucky's microgrid feasibility assessment[7]?

6. Does the project support or align with Kentucky's Energy Assurance and Security Plan[8] and the *Kentucky Emergency Operations Plan*[9]?

7. Does the project's impacted geographic area support under-resourced, vulnerable populations or communities and align with EEC's energy and environmental justice initiative[10]?

   Eligible projects may utilize data sets from the Centers for Disease Control, U.S. Department of Energy, U.S. Census Bureau, state or academic data sets, or the Council on Environmental Quality to demonstrate that impacted geographic areas and populations have characteristics that could classify them as under-resourced, under-represented, socially vulnerable, or otherwise considered "disadvantaged." The Kentucky Office of Energy Policy can provide GIS assistance on identifying these data sets for eligible entities.

8. What is the cost effectiveness of the project mitigation measures?

   Eligible projects should demonstrate the cost effectiveness of the mitigation measures. Cost-effectiveness analysis compares outcomes based on relative costs to see which of the measures provides the best opportunities for success. Eligible projects should also be able to show community benefit - either quantitatively, using cost benefit, or qualitatively for outcomes with no measurable benefit. Eligible entities may choose to use National Renewable Energy Laboratory's suite of data and tools to assist with quantification or may use other equivalent tools to aid in this evaluation.[11]

9. Does the project provide an opportunity for energy and environmental education?

   Eligible projects should demonstrate an energy and environmental education component supporting science, technology, engineering, and mathematics (STEM) via onsite opportunities, curriculum development, internships, apprenticeships, or work study opportunities.

10. Other criteria to be determined.

[7] https://eec.ky.gov/Energy/Documents/SEPA%20Kentucky%20Regional%20MG%20Study_April%202021.pdf (accessed August 2022)
[8] https://eec.ky.gov/Energy/Programs/Pages/Energy-Assurance.aspx (accessed August 2022)
[9] https://kyem.ky.gov/sitecontacts/Documents/State%20EOP.pdf (accessed August 2022)
[10] https://eec.ky.gov/Pages/Environmental-Justice.aspx (accessed August 2022)
[11] https://www.nrel.gov/energy-solutions/data-tools.html (accessed August 2022)

Methods:

Initially, the funding will be used to support resilience hub capacity building at state-owned energy distribution systems via the use of a Memorandum of Understanding between EEC, the Kentucky Finance and Administration (Finance) Cabinet, and the Kentucky Department of Parks (Parks).

Projects will be selected according to the criteria set forth above as developed through stakeholder engagement and further development and refinement of this initiative.

The Commonwealth's capacity to carry out this initiative is further demonstrated by the Finance Cabinet's implementation of the Green Bank of Kentucky. Green Banks are referenced as an eligible funding method under Section 40101(d). The mission of the Green Bank of Kentucky is to promote energy efficiency in state buildings through competition for low-interest loans to reduce operating costs, energy use, protect the environment, save taxpayer dollars, promote economic development, and create new "green collar" jobs by means of education, engineering analyses, and building improvements.[12] The Finance Cabinet, as a partner, provides the capacity and capability to execute and oversee energy improvements at state-owned facilities. *It should not be assumed that the Green Bank will be the mechanism utilized for project implementation at state-owned electricity distribution systems serving critical facilities and is included, solely, to illustrate capacity and capabilities.*

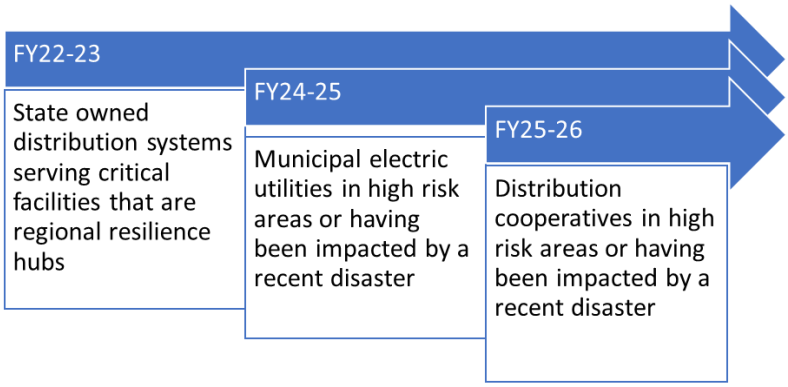
For eligible entities that are municipal utilities or distribution cooperatives, competitive solicitations or direct awards may be utilized, using the criteria outlined in Section 2.

Information related to projects identified and funded will be tracked and made publicly available using an interactive project dashboard. Where possible, applicable metrics will be displayed to illustrate how the projects improve resilience by reducing the likelihood and consequences of disruptive events, generating quality jobs, and improving equity and community benefits. Sub-awards will utilize the Kentucky Office of Energy Policy's Grant Management and Reporting System[13] for monthly reporting on project progress and outcomes achieved.

Funding Distribution:

The overarching vision of funding distribution is illustrated below but is subject to change, based on funding availability, starting with state-owned distribution systems and progressing through municipal utilities and distribution cooperatives in high-risk areas.

[12] https://finance.ky.gov/office-of-the-secretary/green-bank/Pages/default.aspx (accessed August 2022)
[13] https://eec.ky.gov/Energy/Programs/Pages/Grant-Management-Resources.aspx (accessed August 2022)



Initial funding is slated to focus on state-owned distribution systems that serve state parks in Kentucky where the state park is designated as or has been utilized as a critical facility during local, state, or federal emergencies. Our state parks serve as critical, trusted space to build the capacity for regional resilience hubs. State parks build social cohesion, which is a key ingredient to a community's resilience. State parks help facilitate human interactions, create bonds between neighbors, and strengthen respect and trust among community members.

During times of disaster, a strong social fabric is a determinate of success or failure of a community's ability to recover. This was recently highlighted during the devastating eastern Kentucky flooding event of July 2022 where Buckhorn State Park was identified as a crucial location for survivors. However, during the early stages of the disaster, the Park was unable to sustain basic services, such as power and potable water, thereby delaying much needed community aid and placing more strain on federal and private sector resources.

Depending on the type of disaster, state parks can serve several different functions. For example, during a heat wave, parks provide a cooling spaces for residents who lack air conditioning or serve as designated "cooling centers" in publicly-owned air-conditioned buildings. Parks also can serve as disaster response headquarters by housing volunteer or emergency personnel. In addition, they can also act as distribution sites and staging areas for disaster response efforts. As noted during the height of coronavirus pandemic, parks provided critical services such as testing and vaccination events, community blood drives, drive-thru food banks, and non-congregate sheltering, among other activities.

Equity Approach:

Quality Jobs:

By working with strategic partner agencies and organizations, such as those highlighted below, the Commonwealth's implementation of Section 40101(d) funding will provide opportunities for good-paying, safe jobs that are accessible to all workers, supporting job growth through local community investments, using the domestic supply chain when possible. The two primary goals are to attract, train, and retain a skilled workforce and develop workforce opportunities in communities that have lost jobs due to the displacements of fossil energy jobs.

- The Department of Workforce Development (DWD) connects Kentuckians to employment, workforce information, education, and training. The agencies of the department - the Office of Vocational Rehabilitation and the Office of Employer and Apprenticeship Services - work together to provide services through the Kentucky Career Center.

- The Kentucky Federation for Advanced Manufacturing Education (KY FAME) is a partnership of regional manufacturers whose purpose is to implement career pathway, apprenticeship-style educational programs that will create a pipeline of highly skilled workers.

- The Kentucky Community Technical College System (KCTCS) is Kentucky's primary provider of workforce education, delivering programs and services that address the full spectrum of needs faced by business and industry, as well as, programs for individuals who want to upgrade their skills. The KCTCS workforce solutions program provides training programs to meet specific needs of your company and delivers those solutions directly to a location in need.

- The Haas eKentucky Advanced Manufacturing Institute (eKAMI) works to diversify the region's economy by finding sustainable answers and taking the Appalachian workforce displaced by the decline in coal production and preparing them for the jobs of tomorrow.

- Mountain Association invests in people and places in eastern Kentucky to advance a just transition to a new economy that is more diverse, sustainable, equitable, and resilient. Its business support program connects business owners and nonprofit leaders to consultants who can help them succeed.

- Kentucky Housing Corporation's (KHC) Residential Energy Efficiency (REE) Training Center offers an array of training courses for professionals in the building and energy efficiency industries.

A primary mechanism to ensure local investment will be through the use of local hire agreements, as a requirement, for any funded contract as well as promoting small business contracting. Compliance with the Davis-Bacon Act and Build America, Buy America provisions will ensure good paying jobs and sourcing of domestically available materials and services. The Kentucky SMALL BUSINESS CONNECTion Database provides a mechanism for small businesses located in Kentucky to register and provide information about their capabilities and certification (minority, women-owned, veteran-owned, HUBZone, etc.). Government agencies, large businesses, and others can search this database of registered Kentucky small businesses to identify potential vendors and/or business partners.

Additionally, the following resources will be referenced with program partners and promoted for utilization:

- Commonwealth of Kentucky Minority and Women Business Certification Program lists of certified minority and women owned businesses;

- U.S. Small Business Administration Dynamic Small Business Search (DSBS) list of small, minority, women-owned, veteran-owned and HUBZone firms in Kentucky; and,

- U.S. Veterans Affairs verified lists on veteran-owned businesses: Service-Disabled Veteran-Owned Small Business (SDVOSB) and Veteran-Owned Small Business (VOSB) that are eligible for set-asides and sole source contracts.

Each entity engaged in contracting will be supplied a list of resources to assist with complying with contract terms and conditions as it relates to local hire agreements and small, minority or veteran owned businesses.

Community Benefits:
Current state-level resilience planning is limited to Kentucky's Energy Assurance and Security Plan, the *Kentucky Emergency Operations Plan*, and local hazard mitigation plans. In addition, resilience planning is tangentially addressed in regulated utility integrated resource planning activities overseen by the Kentucky PSC. There is no state-level comprehensive resilience plan, although as referenced previously, Kentucky's energy strategy *KYE3* is heavily focused on lead-by-example and local community engagement on resilience activities and economic development. The Office of Energy Policy within the EEC is also the recipient of a FEMA BRIC award and will be focused on working with local Area Development Districts on a critical facility assessment and long-term power outage mitigation measures, as part of local energy assurance planning. The Office of Energy Policy will also work with local communities on the use of the *Energy Assurance Toolkit*[14]. The Toolkit serves as a repository for the essential elements needed to develop and institutionalize an energy assurance plan for a community or organization and a structured process to build a team, develop, and acquire the required information to exercise the plan.

Consequently, activities undertaken for Section 40101(d) funding go beyond existing state-level resilience planning activities. Criteria outlined in Section 2 will ensure that the greatest community benefit is achieved and reduce the impact of disruptive events on local communities and vulnerable populations.

Diversity, Equity, Inclusion, and Accessibility:
Utilizing the criteria established in Section 2, eligible projects will have the ability to reach historically underserved, under-resourced, and vulnerable populations. Eligible projects that are focused on progress toward regional or local resilience hubs will ensure connectivity and conditions for growth where they may not exist, such as in rural and underserved communities.

EEC's strategic plan ensures activities undertaken meet its mission to "Improve the quality of life for all Kentuckians by protecting our land, air, and water resources; by utilizing our natural resources in an environmentally conscientious manner; by helping families connect with nature and preserving the Commonwealth's natural heritage; and by supporting innovative, resilient, and sustainable energy solutions that together bring economic benefit to the commonwealth."[15]

Administration and technical assistance will be utilized to engage impacted geographical areas to ensure that citizens, students, workers, and community leaders are engaged, informed, and offered opportunities to provide continuous feedback and suggestions. Community listening sessions and educational events will be conducted in project areas and sub-award recipients will be required to conduct community engagement events during the project implementation and post project progress

[14] https://eec.ky.gov/Energy/Programs/Pages/Energy-Assurance-Tool-Kit.aspx (accessed August 2022)
[15] https://eec.ky.gov/Documents/EEC%20Strategic%20Plan%202022-26.pdf (accessed August 2022)

for public awareness and feedback that ensure all populations have appropriately accessible information. Sub-award eligible recipients will be trained on EEC's energy and environmental justice resources and requirements as well as compliance requirements contained in standard contract and procurement documents relating to diversity, equity, inclusion, and accessibility laws and policies.

Technical Assistance and Administration:

The Commonwealth of Kentucky intends to utilize the entire five percent allowable for administrative and technical assistance through the support of existing and new personnel. Administrative activities covered include but are not limited to project development, solicitation, evaluation, and oversight. This includes compliance and fiscal oversight. In addition, personnel time may be used for inter-agency coordination activities. Technical assistance will be provided through existing and new personnel or through contractual services that focus on project development and planning, use of evaluation and GIS tools, fact sheets, webinars, and community listening and training sessions.