WATT Coalition Comments: Energy Improvement in Rural and Remote Areas Program Request for Information

In response to DE-FOA-0002841_RFI, Issued October 11, 2022

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Introduction

The Working for Advanced Transmission Technologies (WATT) Coalition is a trade association supporting the wide deployment of Grid-Enhancing Technologies (GETs) to accelerate the clean energy transition and lower energy costs. Members include grid technology, renewable energy and investment companies and a transmission owner. WATT represents three technologies that reduce congestion costs and improve economic dispatch, situational awareness and reliability:

1) Dynamic Line Ratings, which determine the true, real-time capacity of power lines.

2) Advanced Power Flow Control, which allows operators to reroute power to lines with available capacity.

3) Topology Optimization, which identifies the best grid reconfigurations to reroute flow around bottlenecks.

Category 1: Respondent Characteristics

1.1 What type of organization do you represent, or are you responding as a private citizen? To help DOE categorize responses, please use one of the following respondent classifications: private citizen, government, community-based organization, labor union, energy provider, American Indian Tribe and Alaska Native Village, or other tribal organization, for-profit company, other type of non-profit entity, or other. If other, please specify.

Other type of non-profit entity (501c(6) trade association).

1.2 What role would you or your organization play in an energy project conducted through this program?

Our member companies would contribute technology solutions for transmission upgrades and modernization. Our membership includes renewable energy developers, which could build new generation in rural communities. The WATT Coalition will share information between DOE, technology vendors, market participants, rural utilities, and other entities.

Category 2: Potential Project Details

<u>Area Definition:</u>

2.1 In Section 40103(c), “rural or remote area’’ is defined as a city, town, or unincorporated area that has a population of not more than 10,000 inhabitants. Would you characterize the area you represent or have in mind regarding this program as being rural or remote? If so, why? If you are considering many areas (e.g., as a governmental body or non-profit), what characteristics would be indicative of communities fitting this definition?

Renewable energy developments are often in or near rural communities, both because of the availability of land and the disproportionate location of sunny, windy geographies in states with smaller populations. An NREL study found that there is more than 100 times the solar potential in rural areas versus urban ones.[1]

Wind and solar developers often lease land from farmers or public entities, providing reliable income. They increase the local tax base and hire local labor for construction and operation. In total, state and local tax revenue and land lease payments for wind power are over $1.6 billion annually.[2] The Rocky Mountain Institute projects that this could reach nearly $5 billion per year by 2030 with expanded renewable energy development.[3]

Rural communities are often served by electric cooperatives or public power. These tend to be extremely cost-conscious organizations with fewer resources to spend on the adoption of new technologies and methodologies. Federal funding to support upgrades will be very impactful for these organizations.

The WATT Coalition is concerned that the definition of a rural or remote area will limit projects under this program to those with a very local impact. Transmission upgrades tend to have multiple benefits over a large area – indeed, transmission investments can be designed to be most-cost effective if the system-wide needs are considered and a suite of solutions are designed to increase capacity across the system.

2.2 Would you characterize this area as underserved, overburdened, disadvantaged, or as having environmental justice concerns? If so, why and with what metrics? In what ways, if any, does being rural or remote shape these challenges?

Many rural communities see relatively high unemployment,[4] declining population, and potentially lower tax revenue. These communities deserve good, family-supporting jobs that do not degrade the environment – renewable energy development creates local industry to revitalize communities.

<u>Project Priorities:</u>

2.4 Given the purposes referenced above (bullets A-F), what types of energy projects would be most impactful?

Grid Enhancing Technologies increase utilization of the existing transmission infrastructure by measuring capacity in real time and directing power flows. This ensures that customers benefit from the full capabilities of the system.

Deployments of Grid Enhancing Technologies that resolve transmission congestion and enable more generation and delivery of clean energy resources are an impactful use of this funding. A Department of Energy study showed that these technologies pay for themselves within six

[1] https://www.nrel.gov/docs/fy12osti/51946.pdf
[2] https://cleanpower.org/policy/land-based-wind-siting/
[3] https://rmi.org/renewables-offer-rural-america-the-economic-development-opportunity-of-a-generation/
[4] https://www.ers.usda.gov/topics/rural-economy-population/employment-education/rural-employment-and-unemployment/

months to two years[5] based on lower customer costs, and they enable renewable energy projects to interconnect to the grid based on increased transmission capacity. A study by the Brattle Group showed that GETs enabled twice as much renewable energy to interconnect from the queues in Kansas and Oklahoma without any traditional upgrades.[6]

2.5 Would this type of project(s) address energy burdens, economic burdens, environmental impacts, lack of quality jobs, or other energy equity and environmental justice considerations? If so, how?

GETs enable extremely low-cost local generation and enable that power to be exported. A modern transmission grid creates significant economic opportunity by increasing local revenues and creating jobs.

2.6 What barriers have been encountered or would be anticipated for these types of projects or relevant analogs? What are potential paths to overcoming them? Provide specific examples of the types of barriers of interest in the categories of permitting, financing, community engagement, materials acquisition and construction, and operations and maintenance.

GETs are not widely used in the United States, largely due to a regulatory regime that does not reward efficiency in the investor-owned transmission sector. For rural electric cooperatives, the challenges include justifying the cost to local ratepayers, when the benefits aggregate across a wider footprint. Transmission technologies that enable generation development in rural communities benefit those communities. Federal funding to defray costs for initial deployments will help coops build experience with these technologies and reduce the cost-allocation hurdles.

2.7 What would equitable and meaningful community involvement look like for this type of energy project(s)? How can you incorporate perspectives from groups within the community who experience disproportionate socio-economic, environmental, political, or energy burdens? What support is needed to build equitable community engagement?

GETs are deployed on existing power lines and substations – they do not require land or disrupt electric service.

<u>Project Size:</u>

2.8 For projects conducted within the community area in the past or that are being planned, what is the approximate size (e.g., measured in dollars, power rating, geographic benefit)? What size projects could this rural or remote area support in the future? Are there approaches to make projects scalable for future community needs?

GETs deployments tend to cost in the range of $100,000 to several million dollars depending on the deployment. They can increase the capacity of power lines by as much as 40% on average and can enable significant capacity on specific circuits.

[5] https://www.energy.gov/sites/default/files/2022-04/Grid%20Enhancing%20Technologies%20-%20A%20Case%20Study%20on%20Ratepayer%20Impact%20-%20February%202022%20CLEAN%20as%20of%20032322.pdf
[6] https://watt-transmission.org/unlocking-the-queue/

GETs are both scalable and redeployable. As the transmission grid evolves, with new lines, loads and generators in place, GETs can be moved to locations where they have higher value.

2.9 How long would an envisioned project take to go from concept to operation?

GETs projects can be designed and deployed within months.

2.10 Is this project in the review or design stage, or is it ready to build? How do you assess readiness of the project?

Opportunities for the use of GETs can be identified by transmission owners and planners. This is commonly done either through transmission expansion and congestion studies, looking specifically for overloaded assets, or in interconnection studies, when the models of new generation or load identify assets that could be overloaded.

2.12 Is your organization sufficiently staffed to develop a DOE funding application and, if awarded, manage the project? If not, what support could DOE or other organizations provide to enable your participation in the program?

Rural electric cooperatives may need support to design and implement GETs projects.

Community Benefits Planning

2.16 Which entities would need to be involved in these energy projects for them to be successful? Please describe the roles of these entities.

The utility or electric cooperative is the key entity to design and implement a deployment of Grid Enhancing Technologies. If a Regional Transmission Organization serves the area, they would be a valuable partner in designing a project and integrating it with system operations. GETs providers retain the largest global body of knowledge and best practices to share with prospective utilities and would be key project partners as well.

Outcomes and Replicability:

2.20 What outcomes would the organization you represent prioritize for an energy project? What metrics would be appropriate to convey these outcomes?

GETs reduce customer costs by addressing transmission congestion and enabling lower-cost energy to plug into the system. The lowest-cost energy is almost always renewable generation, so GETs will also enable reductions in electricity sector emissions.

Category 3: Program Structure

Program Design

3.5 What existing Federal, Regional, and or State entities that are already engaging in rural and remote communities should OCED leverage?

Public utility commissions could be partners in working with utilities and aligning the implementation of federal programs with state processes.

Signed on behalf of the WATT Coalition,

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