October 14, 2022

TO: U.S. Department of Energy (DOE), Grid Deployment Office
FROM: American Council on Renewable Energy (ACORE)
RE: Request for Information on the Grid Resilience and Innovation Partnerships (GRIP) Program

ACORE appreciates the opportunity to provide feedback to the RFI on the GRIP program. Please find our responses to selected questions below. For questions related to these comments, please contact Kevin O'Rourke (orourke@acore.org) or Elise Caplan (caplan@acore.org).

Category 1: DOE's Proposed Implementation Strategy for GRIP program

1.3 How can funding from the GRIP program best overcome challenges impeding the development of transmission, grid solutions, and interconnecting new generation and storage to improve grid resilience and reliability?

Challenges in planning, permitting, and paying for the expansion of the U.S. transmission grid continue to delay the integration of low-cost clean energy resources. At the end of 2021, over 1.3 terawatts of new wind, solar, and battery storage projects were waiting in interconnection queues.[1] Given these challenges, a focus on grants that facilitate large-scale transmission expansions or upgrades will most efficiently deliver of DOE's goals of improving grid resilience and reliability. Transmission will enable balancing these resources over diverse geographic areas which can help ensure grid reliability and resilience, further the transition to a cleaner grid, and minimize the total amount of generation needed.

To overcome challenges with permitting and planning new lines, ACORE recommends prioritizing GRIP applications that maximize: (a) the use of existing rights of way for transmission or other purposes; (b) expanding transmission capacity on existing transmission infrastructure to help reduce network upgrade costs, which is one of the primary impediments to interconnecting new, low-cost generation; or (c) assist in facilitating cost allocation or risk mitigation on interregional transmission lines under consideration that have already been subjected to some level of stakeholder approval (e.g. RTO stakeholder identification of need or

[1] U.S. Department of Energy, Queued Up, But in Need of Transmission (Apr. 2022), *available at* https://www.energy.gov/sites/default/files/2022-04/Queued%20Up%E2%80%A6But%20in%20Need%20of%20Transmission.pdf.

state utility commission permitting approvals). The technology most capable of meeting both the needs listed in (a) and (b) above is advanced conductoring.[2]

Advanced conductors have a relatively short installation time (e.g. 12-18 months) and use the existing transmission structures. Prioritizing the deployment of this technology can help reduce network upgrade costs for new generators and accelerate clean energy deployment, while also reducing energy losses, GHG emissions, and the amount of generation capacity required to serve load by reducing congestion.

An extrapolation of American Electric Power transmission data demonstrates that over 200,000 miles of transmission lines will need replacement over the next 10 years across North American Electric Reliability Corporation (NERC) regions.[3] Incremental capacity generated by deploying advanced conductors to address just 25 percent of aging infrastructure needs in NERC regions can facilitate the interconnection of at least 27 gigawatts (GW) of zero-carbon generating capacity annually over the next 10 years.[4]

By enabling added capacity on existing transmission structures, the DOE can provide utilities and other grid operators with a greater range of options for keeping the lights on during severe grid events. The additional transmission capacity can also potentially lower the costs of interconnecting new wind and solar generation. Once installed, the reduced line losses from advanced conductors would also enable: (1) less wasted generation and lower emissions; (2) deferral of the need to build new generation; (3) better optimization of existing generation capacity; and (4) reduced freshwater consumption by steam generation facilities.

1.4. What approaches can be used to both solicit and evaluate proposals for high-value deployment projects with additionality (i.e., where additional funding will overcome existing obstacles that would otherwise result in the project not being built)?

Many state utility regulators are subject to "least cost" statutory requirements or seek least cost investments as lower risk. This can impede the utilization of advanced conductors, as the technology typically has higher upfront costs than traditional conductors and higher long-term savings. Regulated utilities are often reluctant to incorporate these technologies in the context of a rate case before regulatory commissions when other matters are also in the case and the addition of these technologies may adversely impact the outcome. As a result, for many distribution and transmission projects, lower/lowest capital cost for a project is the decisive

[2] In these comments "advanced conductors" refers an overhead, bare conductor that uses a trapezoid shaped wire of annealed aluminum to carry the electrical current and a carbon or composite core as the strength (support) member. These include ACCC conductors and other advanced conductors that have lightweight, low-sag cores made from aerospace-grade materials and use low resistance annealed aluminum to carry the current. These features allow advanced conductors to offer twice the capacity, at lower resistance with much less line sag, than legacy conductors of the same size (diameter).

[3] ACORE, Grid Strategies, Advanced Conductors to Accelerate Grid Decarbonization, March 2022, *available at* https://acore.org/wp-content/uploads/2022/03/Advanced_Conductors_to_Accelerate_Grid_Decarbonization.pdf.

[4] Id at 2.

factor. In the context of Regional Transmission Organizations (RTOs),[5] where proposed regional transmission may be subject to competition, lower cost can be an important factor in determining the winner of a request for proposals (RFPs). Here again, the higher cost of investment in technologies with long-term benefit may discourage submission of such additions to the RFP.

Giving priority to utilities that request funding for the incremental capital cost difference between a legacy/conventional conductor and an advanced conductor can solve this challenge. Due to these cost and regulatory dynamics, additional federal funding can help ensure that high-value, advanced conductors are used.

1.5. Any comment on the overall solicitation process, structure, prioritization, requirements, and assessment criteria presented in the draft FOA. The Draft FOA (DE-FOA-0002740) can be found https://www.fedconnect.net/fedconnect/?doc=DE-FOA-0002740&agency=DOE.

Advanced conductor use should be prioritized versus conventional conductors for reconductoring on existing structures at grid congestion points and in powerline rebuild and new line construction. This prioritization will result in greater net benefits for consumers, the environment, and the grid.

1.7 DOE proposes to open the first application cycle for the GRIP program in fall 2022 for 45 days for applicants to submit concept papers, that the Department will then down select to recommend submission of full applications in winter 2023, targeting award selections announced in spring 2023.
a. Any comments on this proposed timing?
b. Are there inter-state inter-regional projects, as described in this RFI, that are sufficiently advanced in development to be ready to apply by this timeline in fall 2022?

a) ACORE recommends keeping the 45 day timeline for applicants to submit concept papers, but would suggest granting up to a 45 day extension for applicants submitting interregional line funding requests, if needed, as long as one state has signed onto the application at the time of the filing. Many state regulators may have to proactively urge or require investor-owned utilities to submit concept papers to take advantage of these programs where they are an eligible entity, particularly if they face a disincentive adding capacity to their existing transmission system that would enable the import of more low-cost renewable power that might displace existing, otherwise uneconomic fossil-fired generation. Educational outreach to state commissioners is still needed to ensure they are aware of the federal funding opportunities, as well as how best to utilize the programs to maximize transmission capacity expansion. Moreover, coordinating a response from multiple states may also pose challenging within that timeline.
b) Yes, there are some planned interregional transmission projects – such as the transmission project identified through the MISO and SPP Joint Targeted

[5] These comments use the term RTOs to include both RTOs and Independent System Operators.

Interconnection Queue (JTIQ) study - which could potentially meet a fall 2022 deadline., although extending the deadline could help ensure projects have sufficient time to meet the proposal requirements.

Category 2: DOE Proposed Implementation for Grid Resilience Grants (40101(c))

2.6 Is the proposed $100 million Federal funds cap per award appropriate? What actions can DOE take to optimize the overall portfolio supported by 40101(c) through the mobilization of other funds? Raising the proposed cap of $100 million per grantee would likely assist in maximizing benefits from this program. For example, three of the five transmission projects in the recently completed MISO-SPP JTIQ study have projected costs exceeding $100 million and the full JTIQ portfolio cost is around $1 billion.[6] While funding from this program could help enable grid enhanced resilience benefits in the two regions for the other two smaller projects, a larger cap would help maximize potential benefits, especially since the JTIQ projects are being proposed as a portfolio of projects to enable significant new generation in both regions over a period of time. DOE should increase the cap to be at least equal to the 40103(b) program.

Category 3: DOE Proposed Implementation for Smart Grid Grants (40107)

3.1 Appropriateness of highlighted grid flexibility functions and technologies of interest identified by DOE above. Are there additional smart grid functionalities or technologies that would support grid reliability and resilience that should be considered?

ACORE agrees with the description of objectives, eligible uses, and technological approaches outlined in the RFI for this program. Within the funding of transmission expansion, priority should be given to projects using advanced conductors on existing structures. Any applications for reconductoring using steel core conductors should not be funded, as advanced conductors provide a greater level of operating capacity and higher efficiency. Advanced conductors also provide a substantial amount of additional, flexible capacity that enables the system operator to respond to unusual or overload conditions without the risk of lines sagging, which would create ground clearance and safety issues. Using advanced conductor also increases the likelihood that any transmission project will proceed quickly and without the need to construction and other permits, thus delivering savings for ratepayers.

Category 4: DOE Proposed Implementation for Grid Innovation Program(40103(b))

4.1 How should DOE define and evaluate a full range of "innovative approaches" to transmission and distribution projects that deploy large-scale, high-value projects that are innovative in scope; scale; stakeholder engagement; technology; partnership or business model; financial arrangement; use of innovative planning, modeling, or cost allocation

[6] MISO-SPP JTIQ Cost Allocation Affected System Study Process, and Transition Details ("MISO-SPP JTIQ"), August 2022, *available at* https://cdn.misoenergy.org/20220822%20MISO%20SPP%20JTIQ%20Cost%20Allocation%20Process%20Transition626064.pdf.

approaches; environmental siting or permitting strategies; or in overcoming other existing barriers to project development and deployment in ways that enhance reliability and resilience and unlock new renewable generation?

ACORE recommends defining "innovative approaches" broadly to include technologies such as advanced conductors, which have a demonstrated history of enabling new capacity and enhancing grid resilience at low cost. However, ACORE also recommends DOE prioritize the funding for transmission infrastructure, as large-scale regional and interregional transmission is needed to deliver the highest value projects (as measured by consumer cost savings, potential resource diversity and potential reliability and resilience benefits).

Using advanced conductors in new line construction provides additional capacity to address various conditions that any grid could face in the future. Put simply, the flexible capacity advanced conductors offer provides an "insurance policy" for future grid needs. Some public power and rural cooperatives already use advanced conductors, but because upfront costs are often a deciding factor for some utility entities, ACORE would encourage DOE to select projects that cover the incremental cost of installing advanced conductors versus the usually selected conventional conductor. To maximize efficiency, DOE should prioritize funding a few large-scale, high-value projects that either: (a) enable interregional lines that allow for the delivery of renewable energy; or (b) use advanced conductors or other innovative technologies that maximize the use of existing transmission infrastructure.

ACORE also urges DOE to view innovation as encompassing transformative business models and compensation. For example, Invenergy Transmission LLC recently requested that the Federal Energy Regulatory Commission hold a technical conference "to explore ways to make available and compensate certain grid reliability and resilience benefits associated with interregional high voltage direct current ('HVDC') transmission provided on a merchant basis."[7]

Invenergy explained that "grid reliability and resilience benefits can be provided to RTOs by merchant interregional transmission projects at a low cost, there is currently no framework under which these interregional reliability and resilience services are adequately valued and provided in exchange for fair compensation."[8] DOE should therefore take an expansive view of "innovation" to include not just technologies but projects that pilot different types of business models or compensation schemes, for example. Moreover, the use of any new or emerging technologies to assist in enabling HVDC lines, particularly interregional lines, should also qualify

[7] Request for a Technical Conference, Invenergy Transmission LLC, Docket No. AD22-13-000, Federal Energy Regulatory Commission (July 19, 2022) at 1.
[8] Id. at 6.

as "innovative," given the relative dearth of HVDC projects in the U.S. relative to other advanced economies in Europe and Asia.[9]

4.5 This draft FOA will make up to $2 billion available for this first award cycle under BIL section 40103(b). Any comment on whether any specific projects or types of large transformative projects might not be viable within the current FOA total of $2 billion, but could be viable if additional funding were made available and/or if the maximum award size were increased (see question #6 below on maximum award size).

Many new lines under consideration by utilities, both large and small, could benefit from using advanced conductors rather than conventional conductors. However, funding the incremental cost of advanced conductors, rather than funding 50 percent of the entire project, is likely all that is needed. Simply funding the incremental cost could allow the DOE to make many different awards for project using advanced conductor, which would maximize the program's impact.

Regarding large interregional lines, as mentioned earlier, the JTIQ process identified five interregional projects between MISO and SPP, totaling about $1.1 billion in cost. DOE funding could help ease cost allocation burdens. The JTIQ is the first of its kind effort in the U.S. to construct interregional transmission lines that could enable the interconnection of thousands of megawatts of new non-carbon generation while providing additional interregional transfer capability and economic benefits to load. The JTIQ portfolio is also unique in that costs are expected to be shared by load and many generators in multiple interconnection study cycles. The high voltage transmission contemplated near the MISO-SPP border would solve a long-standing problem that has prevented the interconnection of substantial amounts of clean generation in the last decade by planning for generation needs over a longer horizon and charging a fee as generators interconnect. The challenge of moving these projects to fruition is the risk to load of carrying the costs of these projects until the generators' portion of the costs are fully paid. Advancing a portion of the costs for these lines would mitigate this risk and help gain support from stakeholders, including state commissions that are reviewing the proposal. It would also allow the construction of the lines to proceed much earlier. A 50 percent cost share on this suite of projects would potentially enable all lines to move forward at a total cost of approximately $550 million, well within the year one $2 billion total Grid Innovation Program budget.

If selected and funded, the JTIQ projects would resolve 33 reliability constraints in MISO's models and 15 reliability constraints in SPP.[10] In addition to these substantial reliability benefits, an economic analysis conducted by the RTOs shows power customers in the two

[9] Americans for a Clean Energy Grid and the Macro Grid Initiative, Macro Grids in the Mainstream, November 2020, *available at* https://cleanenergygrid.org/wp-content/uploads/2020/11/Macro-Grids-in-the-Mainstream-1.pdf.

[10] Joint-Targeted Interconnection Queue Study, March 2022 at 3, available at: https://cdn.misoenergy.org/JTIQ%20Report623262.pdf.

regions can anticipate cost savings of $724 million in the MISO footprint and $247 million in the SPP region. These projected benefits of the projects accrue when the full suite is developed. Further, the JTIQ Study portfolio would allow an increase in generator connections, which are primarily zero carbon emitters. The JTIQ portfolio is estimated to enable between 28 gigawatts (GW) and 53 GW of new generation along the seam in both MISO and SPP.[11]

4.6. Appropriateness of the proposed range of $50 million to $250 million for Federal investment; as well as the provision allowing an increased maximum award of up to $1 billion for an application submitted by a coalition of multiple states for interregional transmission projects.

Consistent with earlier comments, simply funding the incremental cost to move from a conventional conductor to an advanced conductor would add approximately 40-65 percent rated capacity to most planned transmission capacity.[12] Because advanced conductors provide a higher rated operating capacity on the same transmission infrastructure - as well as providing substantial additional flexible capacity - any project using advanced conductors would enable many more zero-carbon generation to interconnect with the grid.

Regarding the $1 billion for interregional transmission, noting DOE's emphasis on "collaboration between and among eligible entities and private and public sector owners and operators,"[13] the solicitation process for such projects should allow for the building of coalitions between the eligible entities, as well as public power and cooperative utilities, and private entities. The stakeholders in the JTIQ processes include all of these categories of entities that operate within MISO and SPP. We therefore encourage DOE to allow for the submission of concept papers by private industry representatives who are in the process of building a coalition that will include the eligible entities.

ACORE also urges DOE to distribute the funds in a manner that allows for a demonstration of innovative technologies that can reduce transmission costs and achieve greater capacity.

4.7 In the collective portfolio of awarded projects, any suggestions regarding project types that have special strategic importance? Should the program prioritize inter-regional multi-state or other types of projects that may be more transformative and provide multiple benefits on a large scale?

Interregional and multi-state project should receive priority, particularly projects already identified in the MISO and SPP JTIQ Study.[14] The timing of these projects is nearing a critical stage. These projects provide the opportunity to solve a problem that has prevented thousands of MWs of clean energy generation from interconnecting in the MISO-SPP regions. However,

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[11] Id. at 2.
[12] ACORE and Grid Strategies, supra n. 3 at 6.
[13] RFI at 15.
[14] MISO-SPP Joint Targeted Interconnection Queue Study, https://www.misoenergy.org/stakeholder-engagement/committees/miso-spp-joint-targeted-interconnection-queue-study/.

the JTIQ faces a substantial hurdle in gaining the support of stakeholders and importantly the states. Because of the importance of the state commissions' support to the outcome of the JTIQ projects, including how these projects are paid for, a plan to have DOE help to mitigate the risk could be critical to the success of the initiative. The success of the JTIQ effort could also provide a model of a creative solution to affected systems study challenges facing many regions across the country.

Projects using advanced conductors should also be prioritized, especially where these technologies can be used to maximize the capacity of an interregional line, for the reasons previously stated.

To date the majority of transmission constructed has been for local reliability purposes and is planned outside the regional transmission planning and cost allocation processes, resulting in less efficient and cost-effective transmission development.[15] As a result, there is a shortfall of larger inter-regional transmission facilities, which are essential for reliability and the deployment of clean energy resources. GRIP funding should be seen as a means to fill in this gap.

Category 5: Community Benefits, Justice40, Quality Jobs, and Performance Metrics

DOE identified eight policy priorities to guide DOE's implementation of Justice40 in DACs: (1) decrease energy burden; (2) decrease environmental exposure and burdens; (3) increase access to low-cost capital; (4) increase the clean energy job pipeline and job training for individuals; (5) increase clean energy enterprise creation (e.g., minority-owned or disadvantaged business enterprises); (6) increase energy democracy, including community ownership and other economic benefits associated with the energy transition; (7) increase parity in clean energy technology access and adoption; and (8) increase energy resilience.

a. Of the eight Justice40 benefits, any comments on tracking these across the GRIP program?

Expanding and upgrading the transmission grid is an essential component of the clean energy transition. Ensuring that these grant programs enable new, zero emission renewable energy generation is critical to the success of the first two policy priorities, with expensive fossil fired generation responsible for current energy and environmental burdens coming from electricity generation. Expanded added transmission capacity will enable lower-cost clean energy sources to connect to the grid, which will reduce energy costs, exposure to harmful air and water pollution from fossil-fired sources and increase energy resilience by further diversifying the nation's energy portfolio. For these reasons, ACORE recommends tracking how new GRIP programs enable additional renewable energy generation and the positive impacts that

[15] See Notice of Proposed Rulemaking, Building for the Future Through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection, Federal Energy Regulatory Commission, Docket No. RM21-17-000, (April 21, 2022) at P 36 and 40.

generation has on displacing older, inefficient fossil fired power plants and their resulting air and water emissions.

This grid transition will also reduce the emissions burden and extreme weather impacts faced by environmental justice communities. In recent comments to the Federal Energy Regulatory Commission, WE ACT described the benefits of transmission for environmental justice. First, extreme weather "and accompanying failures in electricity transmission disproportionately affect environmental justice communities at the frontlines of the climate crisis."[16] Moreover, WE ACT notes that "an emphasis on renewable energy would additionally enable co-deployment of modern technologies including energy storage and a shift away from harmful fossil fuels. The accompanying increase in 'utility-scale energy storage' would render peaker plants, which emit a tremendous source of toxic pollution and particulates and are mainly located in environmental justice communities, unnecessary."[17]

Category 6: Build America, Buy America requirements

If funded, DOE will consider applicability of the Build America, Buy America Act. All projects subject to the corresponding FOA for GRIP are considered "infrastructure." The Buy America requirements of the BIL do not apply to DOE projects in which the prime recipient is a for-profit entity; the requirements only apply to projects whose prime recipient is a "non-Federal entity," e.g., a State, local government, Indian tribe, Institution of Higher Education, or nonprofit organization.

6.1. Identify any iron, steel, manufactured goods/products or construction materials which may be crucial to this work, and whether those items would normally be procured domestically or from a foreign source.

The advanced conductor developed by CTC Global, the ACCC® Conductor, uses no iron or steel. The carbon composite core is manufactured domestically and is usually estimated to be about 40 – 49 percent of the final conductor cost. The final product, as ordered by a utility or powerline constructor, is currently provided by Buy American Act compliant manufacturers both in the U.S. and outside the U.S. by a "designated country" manufacturer.

[16] WE ACT Comments on Building for the Future Through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection under Docket No. RM21-17-000, August 17, 2022, at 1.
[17] Id.