



National Electrical Manufacturers Association

The association of electrical equipment
and medical imaging manufacturers
www.nema.org

October 14, 2022

Mr. Dylan Reed
Department of Energy
Office of Grid Deployment
1000 Independence Ave., SW
Washington, DC 20585

RE: Grid Resilience and Innovation Partnerships Program Request for Information [DE-FOA-0002827]

Submitted via: GDORFI@hq.doe.gov

Dear Mr. Reed:

The National Electrical Manufacturers Association (NEMA), the leading U.S. trade group representing nearly 325 electrical equipment and medical imaging manufacturers, which are at the forefront of helping the nation successfully transition to an electrified and cleaner economy, appreciates the opportunity to provide commentary on the Department of Energy's (DOE) request for information (RFI) on the Grid Resilience and Innovation Partnership (GRIP) program, the recommended collective implementation of Section's 40401(c), 40107, and 40103(b) of the Infrastructure Investment and Jobs Act (IIJA).

NEMA applauds DOE's creative strategy to grid resilience implementation through the GRIP program, which will bring together all relevant players involved in a project at its outset. Manufacturers have long stressed the need to be more directly involved in the development of grid hardening projects. This program seeks to enhance collaboration, providing all actors a comprehensive understanding of the supply chain dynamics related to a project and the ability to better communicate to the intended benefits to targeted market sectors and communities.

As prescribed, the program invites eligible entities from multiple IIJA sections to participate in the competitive bidding process through the submission of a concept paper on a topic related to the program's strategic goals. Then, based on an entity's merits and abilities highlighted in the concept paper, the DOE selects various entities relevant to a project's scope to work together and develop a holistic application for funding consideration. The Department's approach of pooling together interested parties from a project's inception creates a financial incentive for entities to identify and/or resolve structural, procedural, and operational barriers.

Below are NEMA's comments to questions asked by the RFI. Some questions have been combined and responses tailored for clarity.

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

Q1 – What actions can DOE take to best achieve the benefits of coordinating applications to all three GRIP topic areas at the same time?

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Q3 – 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?

The program seeks to involve more eligible entities in grid-resilience projects; however, **it is important for the DOE to make known at the outset what types of hardening projects it intends to prioritize, namely small, medium, and large-scale projects, and the intended amount of grants to award to each priority.** The scope and time commitment of a project will greatly determine which entities will submit concept papers, including manufacturers of grid-resilience products. Manufacturers and vendors all produce at different scale, and not all companies may be the right fit for all project types. DOE could receive more relevant and competitive concept proposals if it signals early how it intends to prioritize project scope and funding.

Project priority identification could also help attract new eligible entities to participate in the GRIP program. For large projects like transmission or interconnection, their complexity generally attracts seasoned and familiar entities who have the institutional knowledge and resources to tackle such endeavors. On the other hand, smaller or moderate grid-resilience projects, which will be more localized and whose benefits can be more directly experienced, can entice non-traditional supply chain actors to become involved. Enhanced involvement by new parties will in turn help them understand how to effectively navigate DOE's application processes, as well as provide DOE and other entities with potentially fresh perspective and creative solutions. For example, as demand for grid enhancing technologies (GET) grows, there will be a need for more manufacturers of these products to be involved in GRIP-type projects.

To encourage the greatest number of concept paper submissions to the GRIP program, especially from new eligible entities as noted above, NEMA recommends that the stated time frame of 45 days, to begin in the fall of 2022, be extended. The given calendar will overlap with the holiday season, which in practice reduces the number of days for both entities to put together their proposals and for DOE to provide technical assistance to

those entities. **Specifically, NEMA advocates for at least 90 – 100 days for concept papers to be developed and presented.**

Clearer prioritization guidance by DOE will also help scope these concept papers. Better focus on project type can allow grid product manufacturers to showcase new technologies and perspectives as well as highlight current and past projects and partnerships which could best adhere to such guidance. Additionally, this could identify funding obstacles or opportunities and give DOE better understanding of which projects could be implemented more quickly and easily. For example, an electrical connector producer may reveal in their concept paper that they have readily available inventory of wildfire prevention/reduction components. DOE might then consider as part of the final application process to award a grant to that entity which subsidizes the sale cost of those components to make them more affordable and be deployed more quickly.

NEMA also recognizes that reducing load demand downstream is a key consideration in grid resiliency. High efficiency equipment such as smart lighting, motors, and building management systems, in addition to grid components and transformers, all play a critical role in reducing and shifting demand. For example, connecting lighting systems (CLS) and controls have the potential to significantly reduce energy demand¹ thereby making the grid more reliable and resilient against disruption. **NEMA encourages DOE to consider concept papers from entities that produce products which address and reduce end-user energy demand.** Further, the GRIP program should consider entities which seek to further develop CLS and other innovative and new-age technologies through monies appropriated for technical assistance or competitive grants.

The GRIP program should incentivize quick completion of all projects by attaching funding stipulations to awarded grants. The growing strain on the nation's grid due to the ongoing electrification of the economy, as well as the rising frequency of catastrophic natural disasters, namely wildfires and hurricanes, means the status quo of infrastructure investment implementation must change. Projects of all sizes need to be completed more quickly; DOE should use its authorities where available to encourage that projects be completed in a timely manner.

¹ <https://www.energy.gov/eere/ssl/connected-lighting-systems>

Q6 – Are existing or expected supply chain concerns anticipated to delay or impact development of potential applications or project implementation, if awarded? What might be some of the potential barriers to timely delivery and how can DOE support the timely development of projects?

Electro-manufacturers who produce grid resilience equipment are affected by existing supply chain concerns in numerous ways, including, but not limited to, the lack of or limited access to rare earth elements, critical minerals, high grid-scale batteries, electric steel, and micro processing chips. The lack of domestic production and processing of these items means that supply chains are largely entangled in trade, geopolitical, and other market dynamics which can complicate project planning and prolong the benefits of grid resilience investments. This could have a significant impact on the approach DOE takes when considering concept papers and recommending entities to submit final applications under the GRIP program.

NEMA strongly encourages DOE to work closely and coordinate with the Department of Commerce, the Department of Homeland Security, and other relevant agencies to have a thorough understanding of the supply chain complexities while considering what types of projects it wishes entities to bid for. Additionally, DOE should consult with supply chain industries, as well as directly with entities who have submitted concept papers, to ascertain details on various supply chain hurdles or barriers which might affect consideration or implementation of certain projects.

NEMA provides further details regarding the supply chain below in answer Category 5: Q1 & Q2.

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

Q2 – What other relevant entities should the Secretary consider as eligible entities?

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Q6 – 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?

Attracting additional and consistent funding sources for grid hardening projects is necessary for the benefits of electrification to be fully realized. Through the IJJA, Congress empowered the DOE to bring supplemental resources to the table through Section 40101, which grants the Secretary authority to designate additional relevant entities as subgrantees to receive conditional grid hardening funds.

NEMA recognizes that while the \$10.5 billion appropriated through the IIJA to the GRIP program is significant, it is not nearly enough to adequately address the nation's grid resilience needs. A July 2020 *Rocky Mountain Institute* report noted that American utilities will invest more than \$1 trillion into maintaining and upgrading the power grid over the next decade.² This will also include investment in microgrids, a proven form of grid resiliency.

The comprehensive GRIP program strategy allows for-profit and not-for-profit entities to participate in the smart grid grant application process via Section 40107. However, **NEMA strongly recommends that the Secretary through its authority in Section 40101(c) designate public-private partnerships (PPP), joint venture (JV), Energy as a Service (EaaS) companies, and third-party developers as eligible entities if such entities would not be considered eligible under another IIJA Section.**

While utilities integrate microgrids as part of their distribution systems, most are privately owned and operated. Owners and operators of these critical, non-utility resilience resources need to be considered as part of the GRIP program. JVs, PPPs, and EaaS companies can help attract further investment to microgrid-provided resilience by helping localities meet subgrant funding match requirements by offering upfront financing for larger, longer-term projects.

Furthermore, the \$100 million federal cap for GRIP program projects indicates that DOE seeks to prioritize projects which are smaller, less complex, or can more immediately be implemented. If proposed awards are capped, the value of each invested dollar will vary depending on certain factors: (1) the market sectors a project is expected to benefit, namely campus/institutions, commercial/industrial, community, and utility segments; and (2) the incremental costs to provide additional megawatts (MW) of resilient energy.

Microgrids are used in the aforementioned sectors identified by the National Renewable Energy Laboratory (NREL). A recent microgrid cost study, the NREL found that of these sectors, utilities had the narrowest cost range (\$2.6 million/MW) but also the fewest number of microgrids. Meanwhile, community microgrids had a mean investment expense of \$2.1 million/MW, campus/institutions at \$3.3 million/MW, and commercial at \$4 million/MW.³ While microgrids are just one approach to greater grid resilience, the NREL study highlights that energy costs will vary depending on audience, meaning that DOE is encouraged to award projects that produce the most energy per dollar.

² https://rmi.org/wp-content/uploads/2020/07/reimagining_grid_resilience.pdf

³ <https://www.nrel.gov/docs/fy19osti/67821.pdf>

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

Q1 – Appropriateness of highlighted grid flexibility functions and technologies of interest identified by DOE above. Are there additional smart grid functions or technologies that would support grid reliability and resilience that should be considered?

Through the GRIP program, DOE is emphasizing innovation, creative thinking, and collaboration among entities, in a way asking them to consider what is possible. As such, it is more than appropriate that this strategy highlights technology's critical role in grid resilience and for project developers to contemplate how such tools can harden systems now and in the future.

Forward-looking planning can identify current and potential risks and threats to the grid. Harmful incidents, whether man-made, intentional, unintentional, or naturally occurring are expected to be drastically more devastating and compounding, particularly as the grid becomes more interconnected and the nation further embraces electrification. New-age strategies and technologies to improve resiliency, cybersecurity, and reliability need to be evolved, as well as the human capital and expertise to support them.

A proactive approach to grid resilience planning will help ensure cost effective IJA investment. Continual capital expenditures which prop up legacy grid equipment and systems simply reinforces a status quo and consequently hardens conservative and dated grid management practices. NEMA believes that a forward-looking approach, as suggested by the GRIP program, will provide confidence to all parties and entities involved throughout the grid. This, in turn, will attract investment, increase quality, and potentially reduce projects' costs overall. It also leans in on the value of data-driven, automated decision-making technologies; smart tools which further identify risks and opportunities for planning purposes.

GETs, dynamic line ratings systems, stationary battery technologies, distributed energy resource aggregators, and other advanced power flow control devices are proven, innovative tools which have helped the grid modernize.⁴ As noted above, continual investment to maintain legacy grid equipment, systems, and management practices will hinder IJA electrification and modernization policy objectives. However, NEMA realizes that immediate and wholesale replacement of dated grid elements is impractical. Modern technologies will serve as a productive bridge between legacy equipment and contemporary systems designed with cybersecurity, digital connectivity, and efficiency in mind.

⁴ <https://www.energy.gov/oe/articles/doe-study-shows-maximizing-capabilities-existing-transmission-lines-through-grid>

Q3 – In the collective portfolio of awarded projects, any suggestions regarding project types that have special strategic importance?

On June 6, 2022, President Biden invoked the Defense Production Act (DPA) to accelerate domestic manufacturing of clean energy.⁵ Included in this order was the prioritization of the production of transformers and electric grid components. Through the DPA, the Administration acknowledges that the electrification and decarbonization goals established in the IIJA cannot be realized meaningfully unless these and other product types are more readily available and domestically produced.

The DPA seeks to increase production of transformers and electric grid components to help meet expected increased demand, particularly when IIJA funds are disbursed. GRIP program projects will need to consider supply chain variables related to their production. Again, by making known the project size types DOE is considering and the amount of funds it intends to allocate to those projects, manufacturers and supply chain vendors can provide insight on what projects are practical.

Scaling up production of all transformer varieties requires significant up-front capital expenditures. These expenditures are needed to expand facility capacity, procure the appropriate machinery, and recruit and train a skilled labor force, among other things. Additionally, this takes time, generally 3-5 years, to appropriately equate production capability with product demand. The intention of the DPA is to help overcome these production hurdles short-, medium-, and long-term hurdles.

As stated in the RFI, the DOE intends to start awarding grants by the end of 2023. Given the strategic importance of transformers and electric grid components as determined in the DPA, grid resilience projects are at top of mind for the Administration. DOE should consider awarding projects that can be realized within current supply chain capabilities.

Q4 – Appropriateness of the requirement for a cybersecurity plan for this provision, and the required contents of such a cybersecurity plan.

The structure of the GRIP program would, in practice, require all entities selected to submit a final project application to consider and agree upon a cybersecurity plan. While the IIJA statute only identifies Section 40107 entities as needing to submit a cybersecurity plan prior to receiving funding, the GRIP program aggregates this requirement to all entities involved with a project. This puts the onus on selected entities to collaborate and design cybersecurity models that are comprehensive and are fully integrated from top-to-bottom. **NEMA considers the GRIP’s strategic approach to cybersecurity to be appropriate and advantageous to all parties involved.**

⁵ <https://www.energy.gov/articles/president-biden-invokes-defense-production-act-accelerate-domestic-manufacturing-clean>

NEMA regards cybersecurity to be a team-sport, not just between private and public sectors, but also between private sector entities. Through the GRIP program, the DOE is providing an incentive for all entities to be team players and to approach grid cyber resilience collectively. It encourages security-by-design by having applicants tailor their approach using the latest standards and frameworks, including the CISA cross-sector performance goals and the latest version of NIST's Cybersecurity Framework. This cooperation could have the added benefit of spurring innovation and new approaches to security between sectors, including methods to better harden the continued integration between information technology and operational technology / industrial control systems.

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

Q1 – How can applicants ensure community-based stakeholders/organizations are engaged and included in the planning, decision-making, and implementation process for the GRIP program?

As described above in RFI question Category 2(Q2 & Q6), microgrids are a key element of grid resiliency and most are privately owned and operated. Since microgrids, by their very nature and definition, provide customized benefits to specific populations or facilities, their owners and operators need to be closely connected to the communities they serve. No off-the-shelf microgrids exist; they are custom-built to fit the critical infrastructure and emergency operations of a given locality, among other uses. These owners/operators, which can include PPPs, JVs, private developers, and EaaS companies, therefore must directly engage with local stakeholders in order to fully comprehend their needs.

NEMA encourages all public and private owners and operators of microgrids be eligible participants into the GRIP program for they demonstrate many of the characteristics the GRIP program is seeking to encourage. These entities will help facilitate partnerships with local neighborhoods and counties. Such engagement is a way to lift local voices, bring more community stakeholders to the table, and give each a role in the decision-making process.

Q2 – How can DOE best support the creation and retention of high-quality jobs, and the clear workforce training pathways into those jobs, through the GRIP program?

President Biden's Executive Order, *Tackling the Climate Crisis at Home and Abroad*, includes the Justice40 Initiative. The electroindustry stands ready to help America transition to a cleaner and more equitable energy future by domestically producing many of the products required for this shift.

To support this social justice objective, NEMA believes that GRIP awarded projects must take into consideration the ability of ‘resilience investments’ to increase manufacturing presence in disadvantaged communities and thus, support the creation of good-paying jobs. NEMA companies continually invest in communities across the country, with several breaking ground on new manufacturing plants in low-income and disadvantaged communities in recent years. In addition to fulfilling *Buy America* and *Buy American* trade requirements established by the IIJA, ensuring that as much equipment is domestically produced can amplify equity benefits. When constructing their proposals, Section 40107 entities to consider economic investments made in low-income and disadvantaged communities.

Currently, 85 NEMA’s member companies produce grid resilience equipment in 49 states. Within these states, goods are manufacturers in 311 counties. Based on 2019 data, the aggregate poverty rate of these specific counties is 12.51%⁴. The five most impoverished of these 311 counties include Hidalgo County, TX (29.7%); Clarke County, GA (29.6%); Cameron County, TX (28.9%); Adair County, OK (27.8 %); and Evans County, GA (26.9%). Table 1 below shows the aggregate poverty rate of all the counties where NEMA utility members have a facility.

Table 1: Aggregate County Poverty Rate Per Utility Facility

State	Number of Counties w/ NEMA Utility Member	Aggregate Poverty Rate (%)
WV	1	18.6
AR	11	18.1
OK	4	18.02
MT	1	17.4
LA	1	17.3
TX	13	16.99
MS	9	16.8
NM	1	16.7
MO	10	14.98
SC	9	14.95
NC	17	14.93
AL	7	14.92
IA	5	14.82
ID	2	14.45
IN	6	14.38
GA	12	13.97
CA	16	13.9
AZ	1	13.8
TN	11	13.53
FL	16	13.26
OR	2	13.25

KY	4	13.175
NE	4	13.05
MI	7	13.02
OH	19	12.7
VA	12	12.64
NV	2	12.5
VT	1	12.1
NY	15	12.08
IL	13	11.69
DE	1	11.4
WA	4	11.25
PA	15	10.9
WI	7	10.55
MA	5	10.48
RI	3	10.46
WY	1	9.9
MN	7	9.7
ND	2	9.4
UT	1	9.2
CT	6	9.1
ME	1	9
HI	1	8.3
CO	5	8.26
AK	3	8.2
MD	5	7.98
NJ	7	7.9
NH	4	7.87
KS	1	5.4

Methodology: Proprietary NEMA membership data cross referenced with provertyusa.org poverty map.
Column 3 results determined by averaging all counties where facilities are located in a given state.

Benefiting these disadvantaged communities will require substantial, long-term investments. As the economy continues to electrify there will be increased reliance on the grid, which will demand that it remain resilient. Resiliency products made by electro manufacturers within these communities can provide stable and high-paying employment opportunities to local residents, as well as societal benefits through increased gross domestic product output and tax revenue.

Category 5: Build America / Buy America requirements

Q1 – Identify any iron, steel, manufactured goods/products or construction materials which may be crucial to this work, and weather those items would normally be procured domestically or from a foreign source.

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Q2 – For any item that would normally be procured from a foreign source, please specify to the best of your ability what actions would be required to comply with this requirement should it be deemed to apply.

Continued limitations of U.S. based materials, exacerbated by ongoing supply chain and workforce disruptions, impedes the electroindustry's ability to deliver on IJA objectives and further anticipates project delays due to Build America and Buy America (BABA) limitations. DOE, along with other IJA-implementing agencies, needs to consider the following to help address these challenges:

- **Provide that the component test includes all labor in the cost analysis.**

Under current procurement rules governing the domestic content of manufactured end products, the component test does not include the cost of labor when determining if the cost of the domestic components exceeds 55% of the cost of all the components. NEMA members' products may require low value components to be sourced from foreign suppliers, but much of the development, design, and assembly is done domestically. A method of determining domestic content that factors in the cost of U.S. labor would benefit domestic firms. This would also positively contribute to domestic manufacturing and good paying jobs, a social goal of the GRIP program.

- **Make the Commercially Available off-the-shelf (COTS) partial waiver, provided for in federal procurements, available for programs governing federally funded infrastructure grants.**

Both government and industry have benefitted from the partial COTS waiver that applies to federal procurements of manufactured products. This waiver eases the administrative burden associated with tracking the cost of components and manufacturers have been incentivized to enter the government marketplace, which has supported American manufacturing jobs. In addition, the COTS waiver has given the government access to cost effective technology available in the commercial marketplace.

Many energy-efficient products would not be available for existing government procurement programs without the COTS waiver, since a large portion of the electrical and electronic components are not domestically available today and would

not be available in sufficient quantity or cost for several years even if the government were to provide incentives for domestic production. The COTS waiver currently applies to government procurement and the same criteria must apply to projects funded through federal grants.

- **Establish consistent criteria for domestic products across all agencies, programs and funding methods.**

To ensure that manufacturers can continue to support the U.S. economy and the important goals of the IJJA, it is crucial that the new Buy America programs implemented are consistent across federal agencies and consistent with existing Buy America(n) programs that already meet IJJA's standards. Consistent definitions for domestic criteria will ensure that funds are implemented quickly, promote U.S. workers, and minimize disruptions to the contracting and purchasing processes. For example, the Federal Transit Administration's Buy America program current meets most of IJJA's requirements and has established definitions which manufacturers rely upon. Overly complex and confusing criteria have a disproportionate effect on small and medium sized U.S. businesses. A consistent framework will also avoid costly delays in the interpretation, inspection and enforcement that will result without such a framework.

- **Include the substantial transformation test in the guidance for IJJA funded programs.**

As the Obama Administration did for ARRA federal assistance programs, allowing for the substantial transformation rule^{6 7 8 9} within IJJA funded programs will support American manufacturing jobs, which would otherwise not be accounted for in current domestic content calculations. This test requires that, regardless of the origin of specific components, substantial manufacturing activities must take place in either the United States or qualified countries. However, it does not factor in all types of manufacturing processes performed in the U.S. and therefore does not support all domestic jobs. Simple assembly processes such as screwing, fastening, and cutting are not considered as part of the substantial transformation test. We urge the Administration to account for all the jobs that are supported in the United States via the substantial transformation rule, regardless of the degree or skill level.

Furthermore, NEMA has strongly advocated for the removal of certain tariffs for selected materials due to the limited or lack of domestic procurement or processing/manufacturing

⁶ <https://www.trade.gov/rules-origin-substantial-transformation>

⁷ <https://www.energy.gov/sites/prod/files/PF2010-54a.pdf>

⁸ <https://www.law.cornell.edu/cfr/text/2/176.160>

⁹ https://www.cbp.gov/sites/default/files/assets/documents/2016-Apr/icp026_3.pdf

of such items. This includes Section 232 tariffs on steel and aluminum imports and Section 301 tariffs on Chinese imports. In conjunction with other trade groups, NEMA has published a white paper on how certain tariffs contribute to supply chain disruption.¹⁰ These tariffs continue to impose economic burdens on the supply chain; without waivers or reform by the Administration or Congress, it is highly probable that the expected benefits of the GRIP program will not be fully realized. Addressing the domestic supply chain and trade limitations are critical to successful IJA implementation.

NEMA once again appreciates the opportunity to provide these comments on how the electroindustry can help implement the GRIP program. If there are questions regarding these comments, please do not hesitate to contact me.

Sincerely,

Spencer Pederson
Vice President, Public Affairs

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<http://newsmanager.commpartners.com/ahripgr/downloads/September%202021/Joint%20Association%20Supply%20Chain%20White%20Paper.pdf>