



**BEFORE THE  
UNITED STATES DEPARTMENT OF ENERGY,  
GRID DEPLOYMENT OFFICE**

REQUEST FOR INFORMATION REGARDING GRANTS TO FACILITATE THE SITING OF  
INTERSTATE ELECTRICITY TRANSMISSION LINES

**JOINT COMMENTS OF THE RAIL ELECTRIFICATION COUNCIL AND  
NEXTGEN HIGHWAYS**

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**I.**

**Introduction**

The Rail Electrification Council (“REC” or “Council”)<sup>1</sup> and NextGen Highways (“NGH”)<sup>2</sup> hereby submit the following comments and information in response to the January 13, 2023, Request for Information (“RFI”) concerning implementation of Section 50152 of the Inflation Reduction Act (“IRA”) in the form of grants to facilitate the siting of high voltage interstate electric transmission lines. The Council and NGH (“Joint Commenters”) commend the Grid Deployment Office (“GDO”) of the Department of Energy (“DOE”) for acting swiftly to implement the IRA and affording all affected parties an opportunity to provide information that will advance the development of specific

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<sup>1</sup> Founded in 2020, the Council is a diverse non-profit coalition of electrical manufacturers, technology companies, transportation companies, renewable energy providers, and other stakeholders that seek to enhance the strength and efficiency of two of our most critical infrastructure networks – the North American high voltage electric transmission grid and the international, national, and regional networks of North American railroads. The Council is an affiliate of the National Electrical Manufacturers Association, but its membership is open to all interested companies and institutions seeking to advance modern energy and transportation policies. The Council’s agenda addresses North American freight and passenger transportation, economic efficiency issues, mitigation of the climate impacts of the transportation and electric power industries, and our infrastructure challenges, in particular the development and integration of the high voltage transmission grid. For more information, please visit [Rail Electrification Council](#)

<sup>2</sup> NGH brings together organizations that support and promote the use of highways as corridors where electric, communications, and transportation infrastructure are strategically and safely co-located in existing rights-of-way. NGH seeks to reduce the political, environmental, and permitting hurdles that stymie transmission and communications infrastructure development and reduce overall cost through more efficient and coordinated planning. For further information, please visit [NextGen Highways](#).

projects and the “overall objectives, goals, and priorities” under this authority, which also include transmission financing loan funding (IRA Section 50151) as well as funding to cover expenses and planning for interregional and offshore transmission lines (IRA section 50153).

Joint Commenters provide below an overview of (1) the critical importance of barriers to efficient transmission siting for grid expansion and integration; (2) the importance of planning and utilizing existing rights-of-way (“ROWs”) to resolving many of these difficulties; and (3) specific answers to many of the questions in the RFI.

In sum, Joint Commenters contend that use of existing ROWs will yield benefits to consumers and the economy by leveraging these past investments for future cost-saving, environmental protection, and economic efficiency. Under the IRA, GDO can fund siting authorities with a focus on grid expansion within existing ROWs, consider a broad set of such authorities beyond traditional transmission planners and state regulators (including state and local transportation system agencies), treat existing ROWs as National Interest Electric Transmission Corridors (“NIETC”) under federal law, and generally regard existing ROWs, whether railroads or highways, as preferred sites for transmission development in this and other proceedings.

Joint Commenters are not developers of any “eligible electric power transmission line” but instead proponents of a major electric transmission build-out, grid integration, a smarter transmission and bulk power system, and a clean energy economy. Although the IRA and the programs initiated under the Infrastructure Investment and Jobs Act (“IIJA”) will infuse the Nation’s electric power delivery system with needed capital in the coming decade, Congress and the Administration correctly identify the most troubling barrier to grid expansion and upgrade, namely costs and process delays arising from an uncoordinated system of facilities siting rules and practices. In that regard, the Council and NGH contend that it is not only important to assist “siting authorities” in the expeditious discharge of their responsibilities to support existing “Covered Projects”, economic development, and social justice activities but also to create the conditions that will induce the private sector to invest in innovative, new transmission projects and

upgrades that will truly modernize the bulk power system. Because transportation and energy infrastructure touches multiple communities, states, and economic interests, coordinating the permitting and siting processes at various levels of government, political or market boundaries, and society, collaboration between these industries and affected parties, especially where unexpected or severe impacts are possible, is a best practice. Utilization of highway and railroad ROWs is an intelligent starting point for planning that people understand.

## **II.**

### **The Importance of Transmission Co-location To Siting Authorities**

Congress has directed the GDO to find and fund a better system of transmission infrastructure siting as the critical path to an integrated grid that delivers cleaner and more reliable electric power resources. In that pursuit, the potential role of the vast networks of existing railroad, highway, and other ROWs simply must not be ignored. Furthermore, Joint Commenters believe that the keen interest in advancing environmental justice and equity reflected in the RFI and the statute, as well as the concern for disadvantaged, affected, and under-served rural communities, make clear that developers and siting authorities should harness the commercial and geo-spatial relationships among the electric grid and transportation systems that serve all communities. Siting authorities should be induced to better utilize the Nation's ubiquitous and historical railroad and highway transportation networks for purposes of efficient, reliable, and environmentally beneficial energy delivery.

### III

#### The Merits of Utilizing Railroad and Highway Rights-of-Way

Existing ROWs, sometimes referred to as “brownfield” ROWs,<sup>3</sup> are among the most favorable locations for new and upgraded electric generation and delivery facilities for two reasons. Locating transmission within railroad or highway ROWs, consistent with safety and operational considerations,<sup>4</sup> will translate into better land use decisions and fewer community impacts. In addition, co-location holds the promise of reduced regulatory delay by diminishing or eliminating the multiple permitting processes and environmental evaluations through effective collaboration between utilities, transmission developers, railroads, state energy officials and departments of transportation, and other immediate stakeholders.

Despite the importance of improved siting and planning processes to the future of grid infrastructure development, the RFI does not expressly acknowledge the importance of ROWs, easements, and other land use arrangements in assessing the stakeholder and community impacts of a project or whether a project stands a “realistic” chance of being built. This shortcoming may reflect the perceived limitations in the scope of Section 50152 and even the need for more far-reaching overhaul of the transmission planning and interconnection processes in the face of the challenging rapid energy transition. While the Joint Commenters agree that funding more efficiency and coordination among states and “siting authorities” as well as federal agencies with land management responsibilities based on information gathered in this proceeding is critically important, the GDO should also be alert to other opportunities to facilitate transmission project. We contend that

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<sup>3</sup> When development of new infrastructure occurs on property that is already utilized for pre-existing land-disturbing, industrial, or commercial purposes, such as pipelines or distribution lines, manufacturing, or transportation systems, that distinguishes it from “greenfield” development.

<sup>4</sup> The use of the term “rights-of-way” in this comment relates to lands generally adjacent to railbeds that railroad companies historically own or lease, and not to the shared use of actual trackage to which multiple transportation companies may seek access for competing mobility operations. See, Federal Railroad Administration, USDOT, *Report to Congress: Shared-Use of Railroad Rights of Way*, July 2019. <https://railroads.dot.gov/elibrary/shared-use-railroad-rights-way> . Similarly, highway ROWs are roadside real estate that does not compromise any shared transportation functions on the roadbed.

GDO must make brownfield siting a “most favorable” criterion when soliciting Transmission Facilitation Program (“TFP”) applications with better land use plans, fewer environmental impacts, and more orderly regulatory processes by utilizing existing ROWs.

Moreover, by more forcefully encouraging the use of railroad, highway, and other existing ROWs, or even considering how they might themselves be designated as national interest electric transmission corridors (“NIETC”),<sup>5</sup> the GDO can employ its authority under IRA Section 40105 to encourage siting authorities to collaborate on approvals for proposed major transmission lines extending across multiple state, regions, or markets, which are among the most challenging types of markets from a siting and cost allocation perspective. In fact, railroad or highway ROWs can be determined by the Secretary of Energy (“Secretary”) to be NIETCs, with the potential to advance grid integration utilizing whatever co-location arrangements can be negotiated, whether under the TFP or other initiatives.<sup>6</sup>

A well-researched summary of recommended transmission siting practices<sup>7</sup> published by Americans for A Clean Energy Grid (“ACEG”) highlights the benefits and practicality of transmission-transportation co-location, as follows:

One potential option to minimize the impact of siting projects is to co-locate the proposed facilities in existing rights-of-way, such as existing electric or gas transmission routes, or alongside highways, railroads, or drainage ditch setbacks. Developers of linear infrastructure projects, including electric transmission lines, natural gas pipelines, and liquids pipelines, routinely seek to co-locate

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<sup>5</sup> 16 U.S.C. 824p(a)

<sup>6</sup> While being historically and operationally different and planned differently as parts of separate supply chains, the actual and potential interaction of freight and passenger railroads and major highways with the electric power grid represents a major opportunity to overcome one of the enduring barriers to the planning, construction, and operation of an integrated electric grid. The Joint Commenters believe that the future development of these two networks is clearly at issue in any proceeding that aims to develop a stronger grid. Neither the Secretary nor the Joint Commenters would wish this to become a missed opportunity to produce timely benefits for consumers, the environment, or the rural communities served by wires, railroads, and highways by treating the siting aspect of transmission lines as an afterthought.

<sup>7</sup> See Americans For A Clean Energy Grid, *Recommended Siting Practices For Electric Transmission Developers* (February 2023)(footnotes omitted).

<https://cleanenergygrid.org/portfolio/recommended-siting-practices-electric-transmission-developers/>

facilities in existing rights-of-way where feasible.

While these efforts have been successful in some cases, there can be practical, operational, safety, financial, and/or legal impediments that prevent co-location. There are some promising developments, however.

Twenty years ago, Wisconsin passed legislation (Act 89) that opened up highway and railway rights-of-way for transmission development. Since then, Wisconsin has sited 26 transmission projects in highway rights-of-way, including eight projects in interstate rights-of-way. The most significant of these was the Badger-Coulee transmission line that uses 100 miles of the Interstate 90/Interstate 94 corridor. Similarly, the Infrastructure Investment and Jobs Act (IIJA or Bipartisan Infrastructure Law) also added “maximizes existing rights-of-way” to the list of criteria the U.S. Department of Energy (DOE) may consider when designating a transmission corridor in the national interest.

Like highways, rail corridors provide another opportunity to co-locate transmission with existing infrastructure. However, railroad rights-of-way are historically private property that is accessible through easement or licensing agreements between single counter-parties – agreements that would benefit from developers engaging in open and transparent communications and fair negotiations. Keeping safety as the top priority, underground [High-Voltage Direct Current] HVDC can be hosted in a relatively small space with minimal impact on train operations or communications. For example, the SOO Green HVDC project, designed to bring renewable energy from Iowa to Illinois, proposes to run about 350 miles along rights-of-way belonging to multiple railroads, while also addressing the interests of adjacent landowners and affected stakeholders with negotiated good neighbor agreements.

In 2021, the U.S. Department of Transportation (DOT) issued guidance to encourage greater use of existing highway rights-of-way for transmission siting. Furthermore, in order to make effective use

of IIJA funding designated for the build out of zero-emission transportation infrastructure, the DOT signed a Memorandum of Understanding with the DOE to create the Joint Office of Energy and Transportation. The Joint Office is tasked in part with “constructing high-voltage . . . transmission pilots in the rights of way of the interstate system.” Most recently, the April 2022 *NextGen Highways Feasibility Study* for the Minnesota Department of Transportation reaffirmed that that in certain instances co-locating transmission in highway rights-of-way can be cost-effective.

Not only can co-location benefit landowners, but it can lower costs and shorten build times for developers. For example, when MISO, the regional transmission planner for many of the midcontinent states, developed the first tranche of its Long-Range Transmission Planning Portfolio, a key consideration in selecting final solutions was the ability for those solutions to use existing system rights-of-way. MISO notes that “us[ing] existing routes, where possible, [] reduce[s] the need to acquire additional greenfield right-of-way. . . enables more efficient development and minimizes the environmental and societal impacts of infrastructure investment.”

Its plan underscores that shorter construction and implementation times are indispensable for member utilities to meet demand amid retirements and resource portfolio changes. Although it cannot be used in every instance, co-location, when feasible, demonstrates that what can be good for landowners can also be good for developers.

#### **IV.**

#### **Q & A**

### **1. What studies and analyses may be useful in identifying impacts from a covered transmission project?**

State departments of transportation share authority over highway ROWs with the Federal Highway Administration (USDOT) and, to a lesser extent, exercise authority over

railroads in their jurisdictions. In the above-referenced 2022 NGH *Feasibility Study*, Minnesota Department of Transportation (“MnDOT”) and NGH examined the opportunities and barriers associated with locating buried high-voltage direct current (HVDC) transmission and fiber optics lines. This Study reviewed applicable policy, regulation, and projects, analyzed MnDOT-specific concerns, examined HVDC transmission line requirements, assessed cost and benefits of buried HVDC, and broadly evaluated typical highway ROW design for suitability of HVDC transmission line siting. The Study’s findings demonstrate that buried HVDC transmission is cost-effective and can be feasibly sited in an interstate highway ROW after making appropriate consideration for existing and future transportation system needs and potential expansion.

The Council has published a broad evaluation of the benefits of rail electrification, which includes why railroad ROWs are strategic, yet underutilized, transportation assets when it comes to energy and communications infrastructure. *The Benefits of Rail Electrification*<sup>8</sup> and the Council’s contribution to the *2021 Nevada Rail Plan*<sup>9</sup> demonstrate that the railroad network can be the critical link between location-constrained renewable resources and major load centers. The GDO should invest resources in studying these important brownfield interconnections even more systematically to make the pathway of existing ROWs clearer to transmission planners. As an industry that is a century older than the interstate highway system, railroads exercise ownership and control of their railbeds, rail yards, and associated ROWs, all of which have changed hands many times over the history of railroad operations. Class I, regional, and shortline railroads are nevertheless instrumental in moving freight and passengers across North America, and maintaining the vibrancy of rural communities. However, like state DOTs, railroads are protective of their ROWs because installing underground (usually HVDC) or above ground (most often AC) transmission and distribution lines raises important issues of safety and communications.

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<sup>8</sup> [https://www.nema.org/docs/default-source/technical-document-library/benefits-of-rail-electrification-final.pdf?sfvrsn=32e792e4\\_0](https://www.nema.org/docs/default-source/technical-document-library/benefits-of-rail-electrification-final.pdf?sfvrsn=32e792e4_0)

<sup>9</sup> <https://www.dot.nv.gov/home/showpublisheddocument?id=18681#page=19>



## **2. What barriers do siting authorities encounter in collaborating with other siting authorities (e.g., States and local governments), or participating in each other's processes, in considering siting, permitting, and other approvals for transmission lines?**

Several states are now investigating the feasibility of co-locating linear infrastructure, both telecommunications infrastructure and electric transmission, in existing rights of way. While this RFI points to collaboration between traditional siting authorities, it is more than advisable that GDO consider in this and other proceedings a set of responsible authorities broader than traditional transmission planners (RTOs or IRP agencies) or state public service commissions. "Siting Authorities" should include state transportation authorities that can take planning, siting, and permitting actions, some of which can involve the entire transportation-energy ecosystem. The electrification of diverse sectors of the U.S. economy requires reduction of the respective historical siloes within which these industries tend to operate, especially with respect to co-location of essential facilities. The infrastructure needed to support electric vehicles is a timely and obvious example of how both top-down and bottom-up leadership can be applied to bridge the gap.

Proper installation of electric transmission facilities alongside transportation infrastructure can be safe, efficient, and can yield enormous benefits related to industrial, land use, and energy policy. In its role as the IRA administrator, GDO should facilitate this development by addressing early on the potential operational impacts that transmission and transportation projects may have on existing infrastructure, environment impacts (as well as mitigation strategies such as the use of existing ROWs), common maintenance and construction issues, permitting and other local law and regulatory requirements. While it may not be possible for GDO to identify specific legal, real estate, regulatory, and engineering challenges for individual projects, it can begin to identify and fund the entities that can and should perform these multiple roles.

For instance, state transportation leaders see several key challenges arising from integrating transportation, communications and electric infrastructure. The NGH Study

found that solving for these challenges opened new employment and other commercial opportunities for both the transportation and energy sectors. Highway fleet and railroad electrification will require extensive upgrades to electric infrastructure in and/or along highway corridors. The “EV revolution” is well underway; the switch to electric locomotives has many historical precedents and promises to help supercharge battery, transmission, and even hydrogen-based generation development in the decades to come. Railroads and their safety regulators should focus on how best to utilize their most underutilized asset – their ROWs.

**3. What barriers do siting authorities encounter in collaborating specifically with federal siting authorities or participating in federal siting and permitting processes.**

This question could elicit long and complex responses about the elaborate procedures and diverse standards that govern siting of transmission infrastructure. Oversight of major industries that inherently operate in interstate commerce is a test of regulation in our federal system. Many conclude that coordination in the planning and development of critical infrastructure has failed, or at least underperformed, in this instance. Joint Commenters address these barriers and challenges throughout these Comments. If the GDO were to ask for the primary stumbling block preventing timely consideration and approval (or rejection) of important infrastructure projects, Joint Commenters would respond that the lack of an industrial policy complete articulated goals, coherent planning processes across sectors, and understandable processes undermines our ability to address the Nation’s energy, transportation, commercial, and security needs. Furthermore, the lack of a policy contributes to misunderstanding, disputes, and untimely responses to the needs of the American consumer and the economy.

**4. What methods and tools are available to assist siting authorities in examining alternative siting corridors for covered transmission projects? How could DOE grants expand access to these tools, and how would that improve**

**the chances for successful siting request processing or shorten the time required to reach a decision?**

Joint Commenters request that GDO consider issuing IRA grants to help with siting and permitting issues surrounding the integration of transmission lines along railroad and highway ROWs. This could include providing siting authorities, states, and localities with resources to identify whether and when brownfield ROWs should be the preferred route and to determine the potential impact such projects might have on stakeholders near transmission development including through exercise of eminent domain authority. This identification process should seek to include entities beyond traditional interested parties so that as many perspectives can be shared, and expectations set, as early in the planning stages as possible. Moreover, this will also provide opportunities to inform the public and new audiences of the benefits brownfield ROW utilization can offer.

IRA grants are clearly intended to provide collaboration between interested parties throughout a project's life cycle. As far as ROW utilization is concerned, this cooperation includes fully ascertaining the needs and concerns of the railroad owners and operators and those private highway owners and state administrative agencies. Parties, including transmission owners, electric utilities, electrical equipment manufacturers, and other commercial entities may be familiar with the complex planning and development processes of the electric power industry. However, railroads and state DOTs, developers, landowners, and state and local administrators may not be aware of the need to coordinate among the diverse – and often heavily regulated – entities involved in planning, development, and regulation of the grid.

Siting authorities themselves are often required under state law also to make a final decision whether transmission projects are in the public interest, not just where they must be located and what terrestrial and historical features must be avoided. Other state agencies or local authorities, tribal entities; or non-governmental agencies (“NGOs”) with responsibility for supervising specific environmental features, populations, or commercial activities may have a key role. For towns or other parties not familiar with or used to

collaborating in transmission project development, participation could be costly and time consuming. Funds are needed to help identify technological alternatives or hire consultants or representatives familiar with local concerns and needs. Joint Commenters therefore urge GDO to employ an expansive definition of which authorities are eligible for funding and which projects – many of which are on the drawing board, awaiting FERC’s planning rules or regional agreements, or subject to future grid imperatives – should be considered eligible for investment under Section 50152.

The IRA grants must facilitate ways to identify the responsible authorities and supporting stakeholder groups and then help develop an efficient means to coordinate among the parties. Joint Commenters therefore contend that substantial investment must be made to educate and organize the relevant decisions makers and stakeholders about why and how they can produce real results for the grid and the transportation sector. These parties need to be engaged throughout a project’s development because the use of existing ROWs cannot be allowed to compromise highway or railroad safety, disrupt communications, or undermine the regular operation of those facilities and services in the public interest.

Two examples of ROW utilization show that siting can be accomplished by either a top-down or a bottom-up process. First, the experience of Wisconsin state agencies, utilities, and regulators in successfully collaborating to place electric transmission infrastructure within and along state and interstate highway ROWs over the last 20 years illustrates the importance of agency support and direction in some transmission siting. There are lessons to be learned by the GDO about how it might encourage the siting of transmission in existing highway transportation corridors. Act 89, the Wisconsin Department of Transportation’s (“WisDOT”) utility accommodation policy and the Cooperative Agreement between WisDOT and the Public Service Commission of Wisconsin (“PSCW”) explain how to accommodate transmission line projects within highway ROWs. Passed in 2003, Act 89 required that the following corridors be utilized in the following order of priority for the siting of new electric transmission facilities:

1. existing utility corridors
2. highway and railroad corridors
3. recreational trails
4. new corridors

After the passage of Act 89, WisDOT amended its utility accommodation policy to allow for the longitudinal installation of transmission lines in its interstate and highway ROW. Pursuant to federal requirements, Wisconsin's utility accommodation policy allows for co-location of transmission provided that it does not (1) adversely affect the safety, efficiency, and aesthetics of the freeway; (2) interfere with or impair the present use or future expansion of the freeway; or (3) rely on access for future maintenance directly from the freeway lanes or shoulder.<sup>10</sup> Consequently, over 800 miles of transmission has been located along interstate highway ROWs in Wisconsin.

Similarly, as noted in the above-referenced ACEG study, the siting of high voltage transmission along the ROWs of multiple rail lines has been negotiated, not necessarily pursuant to new state legislation or a government program, but under private contract in accordance with commercial and operational needs of transmission developers and the requirements of four Class I and regional railroad lines. Such private initiatives can nevertheless be encouraged and to some extent directed by regulators and public policy. The SOO Green HVDC project will move large quantities of wind energy from its remote but abundant source in western Iowa to major load centers in the Chicago area and potentially to loads in the PJM Interconnection. This bottom-up approach still requires siting and permitting approvals and, at least in cases like this, inclusion in a regional transmission plan. That said, the possibility of reducing or accelerating certain permitting steps, eliminating new land disturbances and the use of eminent domain, and perhaps laying the groundwork for future electrification of railroad operations themselves. Such

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<sup>10</sup> In 2009, as a result of Act 89, WisDOT's updated utility accommodation policy, and the development of new transmission infrastructure, WisDOT and PSCW entered into a cooperative agreement "to ensure that whenever practical, WisDOT and PSCW shall utilize existing transportation or transmission corridors instead of creating new corridors for electric transmission facilities."

co-location objectives require competent forecasts of energy and transportation development, grid integration, and beneficial land use that the GDO can encourage as it studies grid deployment.

## **6. What impact would examining alternative siting corridors have on the time required for processing siting requests?**

According to Section 50152(b)(1)(E), the IRA authorizes the Secretary of Energy to make use of these grants for “other measures and actions that may improve the chances of, and shorten the time required for, approval by the siting authority of the application relating to the siting or permitting of the covered transmission project.” Through this authority, grant funding could be used to foster collaborative efforts between railroad owners, state DOTs, energy officials, transmission utilities and developers, and other stakeholders whose views and cooperation may be necessary to advance the transmission projects wholly or in part within railroad and highway ROWs.

Highway and roadway ROWs are often managed by state DOTs under federal direction, whereas railroad ROWs are largely privately owned maintained and also subject to safety and other economic regulation. In both cases, substantial regulatory and other hurdles for the siting of transmission lines can be effectively diminished by using transportation corridors. The impacts of development are reduced considerably and, with them, the concerns for the environment, safety, conflicts over private land use and eminent domain, and regulatory delay or litigation.

Siting, permitting, and building a traditional overhead HVAC transmission line typically takes at least 10 years and often much longer because of challenges related to cost, environmental permitting, and siting on private land. Using highway and rail ROWs can reduce the collateral impacts that accompany new development and construction and allow developers to focus on the concerns of ROW owners and other directly affected property owners. By removing the threat of eminent domain to take land from private owners, the savings of time and expense can be considerable. Reducing the permitting

timeline for a single interregional transmission project by as much as 5 years can generate a billion dollars of societal value as well.<sup>11</sup>

Through these grants, siting authorities would have the resources to explore with the railroads and state DOTs, in studies or public hearing, any legal, regulatory, and/or market challenges that currently prevent them from engaging in or expeditiously permitting transmission projects. Section 50152 clearly contemplates funding studies and fact-finding projects to recognize economic constraints, technical limitations, geographic impediments, safety concerns, and other significant barriers. Furthermore, by recognizing these challenges early, other interested parties like grid operators, and especially transmission owners, can work together with railroads and state DOTs to find solutions. Knowing what these private railroad entities require could make alternative approaches become a reality and greatly expedite the permitting process

<sup>11</sup> As shown below, a hypothetical 2 gigawatt (GW) buried HVDC transmission line delivering 1 GW of renewable energy resources, would transmit 8,760 GW-hours of clean energy in each of those five years. Further assuming 0.5 tons of avoided carbon emissions per megawatt-hour (MWh) of energy, more than four million tons of carbon emissions would be avoided each year. Using a conservative value of \$50 per ton for the avoided carbon emissions, the societal value of these avoided emissions would be more than \$200 million annually. Thus, the five-year reduction in the transmission development timeline for a typical interregional transmission project would translate into \$1 billion of societal value.

| Metric of Interest                              | Value                   | Assumption                         |
|---|-------------------------|------------------------------------|
| Renewable Energy Transmitted                    | 8,760 GW hours per year | 2 GW line with 50% utilization     |
| Avoided Carbon Emissions                        | 4,380,000 tons per year | Baseline: 0.5 tons emitted per MWh |
| Value of Avoided Emissions                      | \$219 million per year  | \$50 per ton of carbon             |
| Reduction in Permitting Timeline                | 5 years                 | 10+ years → 5 years                |
| <b>Societal Value of DOT ROW (for one line)</b> | <b>\$1,095,000,000</b>  | 5 years * \$219 million/yr         |

**17. In what ways, if any, could efforts to mitigate ecosystem, natural resource, or environmental damage be considered eligible economic development activities under the program?**

By definition, siting transmission projects along existing highway, railroad or other ROWs would take advantage of preexisting infrastructure to reduce not only the time of implementation, but to minimize the various impacts of such a project. Keeping impacts to a minimum is not only efficient; doing so also prevents economic development from being pushed away from adjacent areas and communities. By finding ways to advance transmission projects on existing ROWs, siting authorities can both help attract infrastructure investment to certain areas and prevent future investment from being diverted. Such projects would prevent new land from being disturbed. And if lines are buried as opposed being strung overhead, they will arguably garner fewer aesthetic objections.

Contemplating “doubling up” infrastructure investments in energy and transportation (as was done with intermodal freight) reflects a thoughtful approach to delivering benefits with fewer delays and liabilities. It necessitates coordination and advance planning about how this can be done. Addressing only transmission projects that have been conceived, planned, and perhaps are even “shovel ready” without this consideration – as one might interpret the methodology of the Section 50152 – could forfeit the benefit to the environment and the public good that comes from concentrating critical infrastructure resources for maximum economic impact. Industry experts acknowledge that the Nation’s electric grid is a patchwork of facilities, laws, and policies that regulators, policy makers and industry have been struggling to integrate or rationalize since the 1970s. While the system for delivering electricity is beginning to transform itself through non-discriminatory open access, competition, renewable resources, and digital technology, the GDO should choose to step beyond the process of planning and developing one transmission project at a time to an approach that facilitates emergence of a wholistic transportation-electric power ecosystem comprised of these two mutually reinforcing infrastructure networks. One way to pursue such a lofty goal is to



offer to fund the studies and coordination measures of siting authorities that identify railroad and highway ROWs as feasible alternatives for transmission expansion and modernization.

**18. In what ways, if any, could efforts by transmission project developers to reroute, underground, or increase line capacity to avoid repeat or future disruptions from project development, or otherwise implement project designs to limit impacts on communities and landowners be considered eligible economic development activities under the program?**

The GDO must make clear that it will fund siting authorities (electricity, communications and transportation) and the NGOs working closely together with them to pursue an integrated and progressively decarbonized grid nationally, a resilient bulk power market that can respond by transferring power wherever weather conditions, security threats, or high demand disrupt it, and (where possible) a grid that serves transportation and other essential services and communities with the fewest physical disturbances, the greatest safety, and the most predictable future needs of the economy. Section 50152 should reward leadership in long-range, integrated infrastructure planning and respect for community and environmental impacts.

As a major strategic option, buried HVDC transmission systems can be deployed in designated economic development zones. Those zones could, where created in conjunction with highway or railroad ROWs (including waysides and rail yards), include EV charging infrastructure, HVDC converter stations, regenerative power facilities, microgrids, and electric generation facilities as individual economic development zones. Data centers, logistics centers, and military assets (new or existing) are some of the obvious entities that should want access to an HVDC converter station. In other words, a more wholistic approach to transmission development that incorporates strategies around cleaner electric generation, serving new loads (data centers, over-the-road EV charging, and depot-based or rail wayside-based fleet charging) and critical existing loads

(downtown cores and military bases), and achieving better grid economics and reliability can and should be incorporated into the Section 50152 funding plan.

Such complex goals nevertheless require an educational program that will help governors, mayors, and state and regional agencies, as well as industry leaders, to recognize and support the economic opportunities and societal benefits that can be created by working with both the transportation and electric power industries. Co-location of high voltage transmission (and lower voltage at the distribution level) within railroad and highway ROWs is an intelligent way to begin.

Respectfully submitted,

FOR THE JOINT COMMENTERS



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