BEFORE THE
UNITED STATES DEPARTMENT OF ENERGY,
GRID DEPLOYMENT OFFICE

Notice of Intent and Request for Information: Designation of
National Interest Electric Transmission Corridors
Docket DOE-HQ-2023-0039-0001

JOINT COMMENTS OF THE RAIL ELECTRIFICATION COUNCIL AND NEXTGEN HIGHWAYS

I.

Introduction

The Rail Electrification Council ("REC" or "Council")[1] and NextGen Highways ("NGH")[2], identified herein as Joint Commenters, hereby submit the following comments and information in response to the May 15, 2023 Notice of Intent and Request for Information ("NOI/RFI")[3] concerning the processes and objectives for designating National Interest

[1] 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

[2] 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.

[3] 88 Fed Reg. 30956 (May 15, 2023)

Electric Transmission Corridors ("NIETC") that are "route specific." These Corridors would "encompass narrow areas" that are "sufficient for the construction, maintenance, and safe operation of transmission projects" proposed by "interested parties" and designated by the Department of Energy ("DOE") to meet statutory requirements under Section 216 (b) of the Federal Power Act ("FPA §216")[4], as amended by the Infrastructure Investment and Jobs Act ("IIJA"). A NIETC is a threshold step to identify where transmission projects could best be developed to relieve capacity constraints or congestion affecting consumer and other economic and security interests and a jurisdictional prerequisite to consideration of individual projects by the Federal Energy Regulatory Commission ("FERC"). The NOI/RFI addresses how applicants seek such a designation for routes in the absence of a pre-existing right-of-way ("ROW"). Joint Commenters propose that DOE adopt a proactive, programmatic component by designating existing ROWs, namely the established linear geographic areas utilized for public and private transportation, as inherently qualified as NIETCs, subject to the subsequent project sponsor application(s).

The following Comments are part of a continuing effort by the Joint Commenters to encourage the Grid Deployment Office ("GDO") of DOE and the FERC to adopt an open and proactive approach that simplifies implementation of FPA §216 and other laws that govern the siting and permitting of electric transmission.[5] Joint Commenters totally agree with GDO about the necessity for substantial electric transmission expansions and upgrades across the country and throughout North America (see Appendix A, Exhibit A2). The GDO "Needs Study"[6] amply demonstrates the magnitude of the problems created by an inadequate and antiquated grid, and we deeply appreciate its thoughtful approach to implementing Congressional intent under FPA §216. There is an overwhelming need to reduce the historical, regulatory, and

[4] 16 U.S.C. 824p(a)

[5] Comments of the Rail Electrification Council, Applications for Permits to Site Interstate Electric Transmission Facilities, FERC Docket No. RM22-7-000, filed May 17, 2023; Joint Comments of the Rail Electrification Council and NextGen Highways, Request for Information Regarding Grants to Facilitate the Siting of Interstate Electric Transmission Lines, DOE/GDO, filed February 28, 2023.

[6] Grid Deployment Office, *National Transmission Needs Study, Draft for Public Comment*, DOE-HQ-2023-0034 (February 2023).

logistical barriers that have hampered transmission development and interstate commerce in bulk power, prevented key renewable resources from reaching load centers, and led to reliability and resilience challenges for the economy and consumers.[7]

Congress' novel federal solution to these challenges in FPA §216 requires swift federal action when normal state processes fail to work effectively—the so-called "backstop" authorizations.[8] As Joint Commenters argue below, the GDO can honor that objective by foreshortening the NIETC designation process where possible. Therefore, we support (1) the NOI/RFI's case-by-case application process for projects or parts of projects proposed for installation on new ROWs, and (2) an expeditious NIETC designation for projects or part of projects proposed for development on existing ROWs. A NIETC designation should avoid layers of regulation, delay, or expense when use of existing ROWs will likely result in collateral benefits on the environment and surrounding communities. The use of existing ROWs, notably those along the national network of railroad lines and those along interstate and other highways, should be preferred areas for co-locating transmission and therefore presumed to advance the requirements of FPA §216 as the NIETC designations are made consistent with the approaches and information developed in this proceeding. We recognize that GDO may provide such blanket designations conditionally, subject to appropriate

[7] *See e.g*., the following representative analyses of the delay and dislocation caused by the lack of adequate transmission to transport clean energy resources: North American Electric Reliability Corp. (NERC), 2021 Long-Term Reliability Assessment December 2021 (p.5); "Transmission Planning for 100 Percent Clean Electricity," Energy Systems Integration Group (2020); Nadia Popovich, Brad Plumer, Why the U.S. Grid Isn't Ready for the Energy Transition," *New York Times*, June 11, 2023; Attracta Mooney, "Gridlock: how a lack of power lines will delay the age of renewables" *Financial Times*, June 11, 2023; Bart Ziegler, "Can the Power Grid Handle a Wave of New Electric Vehicles?" *Wall Street Journal* (Feb. 25, 2023);; David Wagman, "It's Time to Tie the U.S. Electric Grid Together, Says NREL Study," *IEEE Spectrum* (August 8, 2018)

[8] The statute also assigns the Department of Energy the responsibility to act as lead agency in coordinating federal authorizations and "related environmental reviews" of qualifying electric transmission facilities and establishes ambitious timelines for completing federal reviews, including consultation with affected stakeholders. FPA §216 (h). This provision is implemented in part under procedures adopted in a *Memorandum of Understanding among [nine named Executive Branch departments and agencies] …Regarding Facilitating Federal Authorizations For Electric Transmission Facilities* (White House, May 10, 2023).While NIETC designations are not part of Section 216(h), Joint Commenters believe that DOE should recognize that factoring in transmission co-location in existing transportation ROWs into interagency coordination of federal or Tribal lands decisions should help manage potential impacts and expedite this federal process as well.

qualifications when individual projects and their use of existing ROWs are explored on the record.

NOTE: This Comment includes three Appendices referenced in the text: Appendix A –Meeting Decarbonization, Demand Growth, and Distributed Generation with Transmission; Appendix B – Existing Railroad Rights of Way Across North America; Appendix C – Existing Highway Rights of Way Across North America.

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II.
EXISTING ROWS: A SPECIAL CLASS OF SITING/PERMITTING OPPORTUNITIES

GDO has a key role fostering private development of transmission with all the benefits and salutary effects a stronger grid can deliver. It should encourage swift project authorization in cases that fall under FPA §216 by addressing NIETC designations expeditiously. As the NOI/RFI noted prominently, NIETC designations are a jurisdictional prerequisite for FERC siting authority in specific cases where the siting and permitting processes have failed at the state level. They do not constitute approval of any project but instead preliminarily screen development plans for compatibility with the grid's need for additional capacity and various statutory considerations. Joint Commenters believe that siting infrastructure must be done carefully with due regard for the interest of stakeholders as well as potentially affected environments and communities. These interests should never be

ignored and must be constructively addressed according to the likelihood of new and unanticipated impacts. We, therefore, champion utilization of existing transportation ROWs, swaths of land that have been previously disturbed by industrial practices and operations and which extend between existing and reasonably anticipated energy resources and the major load centers that require those resources. More importantly, the Nation's ubiquitous and historical railroad and highway networks afford the GDO and FERC an opportunity to meet the terms of the statute, in many circumstances without case-by-case determinations of project corridors, while still meeting the goals of efficient, reliable, and environmentally beneficial energy delivery.

Existing ROWs, sometimes referred to as "brownfield" ROWs,[9] are among the most favorable locations for new and upgraded electric generation and delivery facilities for two reasons. First, locating transmission within railroad or highway ROWs, consistent with safety and operational considerations,[10] will translate into better land use decisions and fewer adverse impacts on surrounding communities and resources. Second, co-location can reduce regulatory delay by diminishing or eliminating the duplicative permitting processes and environmental evaluations. Co-location can lead to a focused process with a clearly defined set of stakeholders, allowing for orderly engagement. Effective collaboration between utilities, transmission developers, railroads, state energy officials and departments of transportation, and other immediate parties can occur earlier and proceed more rapidly where the selected route — the NIETC — is known.

Despite the importance of improved siting and planning processes to the future of grid infrastructure development, the NOI/RFI does not expressly acknowledge the importance of existing ROWs and related land use arrangements in assessing the environmental,

[9] 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.

[10] 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. Similarly, highway ROWs are roadside real estate that does not compromise any shared transportation functions on the roadbed.

stakeholder, and community impacts of a transmission project; nor does it address their potential role in transmission planning and generation interconnection. While the Joint Commenters agree that more effective coordination among state "siting authorities" and between state and federal agencies having land management and resource responsibilities is critically important, the GDO should also be alert to other opportunities to facilitate the deployment of more transmission capacity. As we argued in previous comments, the GDO must make siting transmission within an existing transportation ROW a "most favorable" criterion when soliciting Transmission Facilitation Program applications with better land use plans, fewer environmental impacts, and more orderly regulatory processes by utilizing existing ROWs. NIETC designations are another opportunity to be innovative.

The GDO can employ its authority to encourage siting authorities to collaborate on approvals for proposed major transmission lines by: more forcefully encouraging the use of railroad, highway, and other existing transportation ROWs; establishing a preference for such ROWs; and, designating them as transmission corridors of national interest and importance. This would be particularly opportune for projects that are proposed to extend across multiple states, regions, or markets – typically the most challenging types of projects from a siting and cost allocation perspective. In fact, the Secretary of Energy ("Secretary") can designate all or a portion of railroad or highway ROWs as NIETCs, subject to subsequent consideration of such co-location arrangements as can be later negotiated, whether under private arrangements or in coordination with state transportation agencies.[11] A recent summary of recommended transmission siting practices[12] reinforces this point.

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[11] 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.

[12] *See* Americans for a Clean Energy Grid, *Recommended Siting Practices For Electric Transmission Developers* (February 2023)(footnotes and some text omitted):

> 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

Joint Commenters supplied detailed responses to GDO's questions in previous RFIs regarding grants to facilitate siting, the barriers encountered in working with state and federal agencies in the development of transmission projects, the timing of successful siting processes, and the experiences to date in using existing transportation ROWs to support and expedite the siting and permitting processes. We expand on those answers below.

> liquids pipelines, routinely seek to co-locate facilities in existing rights-of-way where feasible.
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> 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.
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> 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.
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> 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. . . .
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> 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." . . .

III.
NIETC DESIGNATIONS FOR EXISTING TRANSPORTATION ROWs

A. Railroad and Highway ROWs Meet the Designation Criteria

Congress intended that designated corridors, within which FERC would have siting authority, would result in speedier development of transmission facilities, provide cost-savings, strengthen and enhance the resilience of the Nation's interstate trade in electric power, and offer greater economic vitality of communities along ROWs. The overall economic vitality of our communities and the sustainability of the changing transportation sectors will require the secure delivery of power. This can be enhanced by growing our investment in modern bulk power transmission and reversing the anemic levels of investment of the past decade. It is true that myriad variables, including the topography of the grid, the location of generation resources and loads, state and local regulations regarding land use, the geography of specific ROWs, and the probable occurrence of uniquely destructive and unpredictable natural events (e.g., Winter Storm Uri and Super Storm Elliot in Texas), will powerfully affect transmission planning and development decisions in certain cases. That being said, Joint Commenters submit that because transmission's "time to market" is so important in our national quest for a stronger grid and net-zero emissions that DOE and all regulators need to fully explore proactive approaches to infrastructure development. Existing transportation ROWs provide distinct advantages to the planner, developer, and builder of transmission seeking to meet needs that DOE has expressly articulated[13] and the current challenges to electric reliability. In that light, Joint Commenters contend that DOE can accelerate developments in this proceeding by seizing the opportunity that these ROWs represent.

While the impact on energy policy is within the particular province, expertise, and independence of the Secretary, GDO should heed the Administration's policy priorities

[13] National Transmission Needs Study, Draft for Public Comment (February 2023) DOE-HQ-2023-0034

announced May 10.[14] Together with new approaches to National Environmental Policy Act (NEPA) reviews, they strongly suggest that any designation of established transportation ROWs as corridors for transmission development will usually be preferable to the development of greenfield sites, which are lands or ROWs that have not been developed or disturbed for commercial or industrial use. For example:

- Expand responsible use of administrative categorical exclusions. Congress should require Federal agencies to examine and propose the use of categorical exclusions for clean energy projects where feasible. More than 95% of Federal actions are already approved under the most expedited form of environmental reviews, which enables speedier reviews for projects that have minimal impact on the environment and public health.

- Cut Duplicative and Burdensome Analysis and Reviews. Often environmental reviews and permitting processes need to be conducted sequentially, which can result in unnecessary delay and revisiting of decisions. Congress should address several areas where overlap occurs, including: expediting transmission projects in designated transmission corridors by allowing projects to rely on the analysis included in corridor-wide programmatic environmental reviews without the need to re-analyze resources and impacts that have already been examined.

FPA Section 216(a)(4) allows the Secretary to consider eight identified (and arguably more) criteria when designating a "geographic area" as a NIETC. To wrest siting and permitting away from states that may feel less keenly than federal policymakers about the need for transmission, especially projects that advance a national energy goal, backstop siting allows the FERC to become the regulator of last resort for certain proposed projects. Yet, FERC has no authority to consider or authorize the siting and permitting of a transmission project that would be built outside such a corridor. The statute gives DOE considerable discretion and flexibility to evaluate: how a specific corridor would enhance economic vitality or development of the corridor or end-use markets (Sec. 216 (a)(4)(A)); economic growth or restrictions in end-markets served by the corridor ((a)(4)(B)); and the impact on US energy independence ((a)(4)(C)) or on national energy policy ((a)(4)(D)).

[14] White House Memorandum: Biden-Harris Administration Outlines Priorities for Building America's Energy Infrastructure Faster, Safer, and Cleaner (May 10, 2023)

While existing transportation ROWs meet these general criteria on their face, Joint Commenters want DOE and FERC to take an even closer look at the merits of designating these existing ROWs as NIETCs, with respect to additional criteria under paragraph (a)(4), highlighted below:

Section 216(a)(4)(E): *National defense and homeland security*. Economic security is homeland security, and the US grid lags behind major levels of electricity infrastructure investment. Hostile or competing countries like China have planned and/or recently brought online 260 gigawatts of high and ultra-high voltage (including direct current) transmission to accelerate its growth and development.[15] Conversely, the US grid is widely acknowledged to be outdated in important aspects, congested, and in need of major modernization and expansion.[16] Utilization of existing or brownfield ROWs to accelerate the authorization and development of transmission infrastructure is the single most readily-available solution to the paralysis in current planning and development processes.

Additionally, the transmission and transportation systems jointly serve a military purpose.[17] The Strategic Rail Corridor Network (STRACNET) is a designation of civil rail lines as part of a defense network. Accordingly, 38,000 miles of lines must meet minimum defense readiness conditions. STRACNET and connector lines are the civil railroad lines

[15] James McCalley, Qian Zhang, "Macrogrids in the Mainstream: An International Survey of Plans and Progress," Americans for a Clean Energy Grid, 2020.

[16] 2021 Report Card for America's Infrastructure, American Society of Civil Engineers; Tim McLaughlin, "Creaky U.S. Power Grid Threatens Progress on Renewables," EVs, Reuters (May 12, 2022); Johannes Pfeifenberger, John Tsoukalis, "Transmission Investment Needs and Challenges," The Brattle Group (June 1, 2021)

[17] The legislation that led to the development of the interstate highway system was known as the National Interest and Defense Highways act in recognition of the importance of a transportation network to national defense. Eisenhower first realized the value of good highways in 1919, when he participated in the U.S. Army's first transcontinental motor convoy from Washington, DC, to San Francisco. And during World War II, Eisenhower saw the German advantage that resulted from their autobahn highway network. In his State of the Union Address, Eisenhower declared that a safe and adequate highway system will "protect the vital interest of every citizen."

most important to national defense primarily because it serves 193 defense installations whose national security mission requires rail service.[18]

Similarly, the Strategic Highway Network (STRAHNET) a 62,791-mile system of roads deemed necessary for emergency mobilization and peacetime movement of heavy armor, fuel, ammunition, repair parts, food, and other commodities, is critical to U.S. military operations. While the Department of Defense primarily deploys heavy equipment by rail, highways also play a critical role.[19] (*See* Appendices, Exhibit B5 and Exhibit C3 on STRACNET and STRAHNET). The energy supply and communications potential that would accrue from high voltage transmission that shadows rail or highway networks would have important defense implications. Military installations that are required to use or operate renewable energy resources may be uniquely dependent on transmission to deliver that capability. In particular cases, the alignment of transportation and energy infrastructure may have notable economic and logistical advantages.

Section 216(a)(4)(F): *Interconnection to the grid of generation and transmission assets*. Much of the current support for expansion of the transmission system derives from the growth and declining cost of domestic renewable resources, principally wind and solar power. The best resources are in the US mid-continent, in Canada, and offshore. In many cases, the transmission grid is unable to access those remote resources or lacks capacity to deliver these valuable resources to load centers (see Appendices, Exhibit A1). The inadequacy of the grid has resulted in over 2,000 GW of total generation and storage capacity being logjammed in transmission planning queues while planners seek solutions. Those solutions often entail new regulatory mechanisms or rejection of projects that are not

[18] Military Surface Deployment and Distribution Command Transportation Engineering Agency, Railroads for National Defense, "The RND Program, in conjunction with the US Federal Railroad Administration (FRA), established the Strategic Rail Corridor Network (STRACNET) to ensure DOD's minimum rail needs are identified and coordinated with appropriate transportation authorities."

[19] Military Surface Deployment and Distribution Command Transportation Engineering Agency, Highways for National Defense, the role of the SDDCTEA is to "establish policy and provide guidance on how the DoD uses the public highway system. … assist the military in highway movement problems, work to ensure highway safety, and help guarantee the highways' readiness condition for deployment."

commercially ready.[20] The resulting loss of clean energy development is a grave setback for clean energy compliance with state law and national climate change mitigation strategies. A major way to accelerate transmission for renewables is by more extensive use of transportation ROWs, which Joint Commenters contend should be designated a NIETCs to serve this dramatic national need for grid integration.

Section 216(a)(4)(G) ***Maximization of existing ROWs, avoidance, minimization, or offset of impacts on environmental and cultural areas*****.** Generic designation of railroad and highway ROWs as NIETC would add thousands of miles of new ROWs to the potential opportunities to co-locate transmission. Railroads operate in 49 states and the District of Columbia, with short lines running about 44,000 route miles and Class 1 freight railroads running over 92,000 route miles. In addition, National Highway System includes 160,000 miles of roadway important to the US economy, defense, and mobility. (*See* Appendices B and C, attached). This criteria of FPA §216 is the supreme justification for designating existing ROWs under the Act. With encouragement from DOE, rail and highway ROWs can muster new ROW negotiations and state agency activity that will redound to the benefit of local communities, environmental quality, natural features. But project development within existing transportation ROWs reduces the need to permit and build new transmission infrastructure on undeveloped land or infringe on protected land and communities. It adds certainty to development with respect to location, affected stakeholders, and affected resources. Transmission development on transportation ROWs is already demonstrating that established ROWs can be practically and efficiently employed on behalf of a grid whose expanse across market and state boundaries will increase reliability, make the system more resilient in the face of extreme weather and growing demand, and

[20] Joseph Rand, Mark Bolinger, Ryan Wiser, Seongeun Jeong, Lawrence Berkeley National Laboratory, "Queued Up: Characteristics of Power Plants Seeking Transmission Interconnection As of the End of 2020," May 2021; Julie Lieberman, How Transmission Planning & Cost Allocation Processes Are Inhibiting Wind & Solar Development in SPP, MISO, & PJM, American Council on Renewable Energy, American Clean Power Association, Solar Energy Industries Association; Michael Goggin, et al., "Resolving Interconnection Queue Logjams: Lessons for CAISO from the US and Abroad" (Grid Strategies, October 2021)

result in fewer adverse impacts.[21] (*See also* Appendices B and C for descriptions of these planned transmission projects utilizing existing transportation ROWs.) Now, DOE and FERC can take the next step by elaborating on this model approach.

Section 216(a)(4)(H): *Reduced consumer costs.* One factor has revolutionized the electricity market in the past two decades – the declining capital expenses of wind and solar generation, which have no fuel costs. Clean energy is now cost-competitive with fossil energy. However, vast amounts of these resources are location-constrained and remain unavailable to the market because of the inadequate delivery capability of the grid. (*See* Appendix A) Generic or individual NIETC designations for railroad or highway ROWs will expand the number of opportunities to quickly and effectively bring new electricity resources to end-users through better siting and permitting.

[21] Transmission projects in New York and the Midwest – two regions with high prices due to transmission constraints – are already planning to deploy existing transportation rights of way.

1. The SOO Green HVDC Link (Exhibit B6,) is a proposed 350-mile, 2,100 MW, 525KV underground HVDC transmission line running along existing rail and highway corridors from Iowa to Illinois. The Project will connect the nation's two largest power markets – Midcontinent Independent System Operator (MISO) in the Midwest and PJM in the east. SOO Green will supply residential, municipal, and commercial customers in PJM with reliable, affordable, and clean energy. The project is expected to drive $2.5 billion in direct investment and create thousands of construction, operations, and maintenance jobs, and spur additional economic activity throughout the Midwest. The "SOO Green HVDC Link is pioneering a new model for sustainable transmission development that avoids environmental impacts associated with traditional above ground transmission lines. By installing the conductor cable underground along existing railroad right-of-way and other transportation corridors, SOO Green reduces the need for tree clearing and eliminates threats to sensitive species such as migratory birds, bats or native plants."
2. Another transmission project, the Clean Path New York (see Exhibit C4), is expected to enable the delivery of more than 7.5 million megawatt-hours of emissions-free energy into New York City every year by accessing resources in the upstate and western regions of the state. The project, combined with the Champlain Hudson project, will help New York State meet a 2030 goal of producing 70% of the state's electricity using emissions-free resources. The 175-mile transmission line will connect 3,800 MW of new solar and wind power to the New York Power Authority's existing 1,160 MW Blenheim-Gilboa Pumped Storage Power Plant. The use of existing transportation rights of way is key to the community and environmental benefits: "The Clean Path NY transmission line will be built entirely underground or underwater and mostly on existing rights-of-ways already used by transmission lines and roads. The proposed transmission line has been designed to avoid and minimize impacts to the surrounding ecosystem by utilizing existing transmission line and road rights-of-way and by avoiding sensitive habitats within the Hudson River." Notably, placing transmission lines underground also increases resilience in the event of extreme weather.

The litany of benefits from a NIETC designation must include the potential for ramping up access to location-constrained renewable resources as part of the national campaign against climate change, reducing reliance on fossil fuels, and preparing for the growth in industrial electrification. There are no more ubiquitous networks of ROWs than those associated with the 160,000-mile interstate highway system or the 140,000 miles of railways across the US and Canada. These networks connect communities and local economies across the country and will reach the best wind and solar production areas that today's transmission grid often serve poorly, if at all (*See* Appendices B and C,). GDO's draft Needs Study makes an important case for major interregional transmission expansions and the major benefits that new transmission projects will deliver to the economy and to consumers of electricity. The large, contiguous, and continuous linear ROWs of railroads and highways are high-value assets in such an environment.

According to the recent Needs Study, increased interregional transfer capacity needs to develop between the Great Plains region and the Midwest, between the Midwest and the Mid-Atlantic, and between New York and New England. But in reality, all regions stand to gain economically and health-wise from a sound and integrated grid. We note that extreme weather caused by the changing climate has now placed a premium on increasing the resilience of the grid.[22] To illustrate the problem, the lack of significant transfer capability between Texas (Electric Reliability Council of Texas, or "ERCOT") and external power markets and other reliability regions imposed enormous penalties on the lives and pocketbooks of Texas consumers during recent violent weather episodes. This was the result of historic transmission constraints which rendered power from surrounding regions unavailable to ERCOT systems during emergencies in 2021 and 2022. Moreover, while Texas is the most significant state producer of renewable energy in the US, these resources are largely unavailable to external markets, and vice versa, because the grid is constrained by existing law or historical practice. Transportation ROWs provide a useful blueprint for locating

[22] Michael Goggin, "Transmission Makes the Power System Resilient to Extreme Weather," American Council on Renewable Energy (July 2021); "Transmission Planning for the 21st Century: Proven Practices that Increase Value and Reduce Costs," The Brattle Group (October 2021)

large multistate transmission projects because railroads and highways operate unrestricted throughout regional and national markets.

B. NIETC Designations Under The NOI/RFI: Recommended Changes

1. *Applicant-driven, Route-specific NIETCs.* Joint Commenters fully support the approach announced in the NOI/RFI that the forthcoming designations will "encompass narrow areas that are under consideration for the location of specific potential project(s), and which are sufficient for the construction, maintenance, and safe operation thereof in accordance with any applicable regulatory requirements." Importantly, DOE also states that NIETC designations do not create a preference with respect to the financing, siting, planning, or potential authorization of a project. We applaud GDO's decision not to paint corridors with too broad of a brush, for legal[23] and practical reasons. The regional breadth of prior designations under FPA §216 made adequate identification and consultation with stakeholders extraordinarily difficult because of the volume and variety of landowner, environmental, economic, and other issues involved. DOE adopted an ambitious approach in 2006 that set itself up for rejection by the courts.

Congress did not specifically define or limit the size and nature of national interest corridors and the GDO is therefore wise to preserve its flexibility and to look for the most workable approaches. The case-by-case approach outlined in the NOI/RFI is predicated on versions of "greenfield" development and the prospect of elaborate permitting or litigation. Joint Commenters contend that NIETCs may vary and that designations may be driven by multiple economic, technological, business, and social justice circumstances. However, a corridor designation under FPA §216, while taking account of these variables, needs to ensure that, as a prerequisite to FERC's new "backstop" authority to site and permit transmission projects, some mix of statutory conditions are met based on the data and evaluation of the project application. We have outlined above how the permissive standards of Section 216 can apply to transmission co-location. Although this may require a searching examination of proposed projects, wherever located, Joint Commenters urge GDO to keep in mind as its

[23] Calif. Wilderness Coalition v. U.S. Department of Energy, No. 08-71074 (9th Cir. Feb. 1, 2011)

plans for NIETC-related processes come together that the overall goal of expeditious authorization and development under Section 216 is paramount, even for so-called "shovel ready" projects. A NIETC designation only sets the table for subsequent FERC consideration of a project's merits.

2. *Process-Driven, Route-Specific NIETCs*. Joint Commenters recommend that GDO consider expediting the NIETC designation process, consistent with its view of its statutory responsibility. It would make sense for GDO to designate all transportation ROWs as NIETCs. Such a generic designation could be conditioned upon further procedure or review when a project applicant proposes to use all or part of a designated transportation ROW. GDO could in theory refine such designations in accordance with the needs and configuration of specific kinds of projects, specific generation resources, a specific planning region, or whether the railroad or highway ROW can physically support such installation. Many such determinations will inevitably be part of FERC's processes when a project application is filed. Regulatory preapproval by a state transportation agency or agreement between the project developer and, say, a railroad landowner should not be a prerequisite to a generic NIETC designation. Put another way, such agreements or approvals will be fully ripe for consideration when a specific project that uses a NIETC-designated existing ROW is presented to FERC under FPA §216 and not during the process of designating a NIETC as would be the case where greenfield development is proposed, *i.e.*, in individual cases not involving existing ROWs. We have identified this as an important opportunity to minimize if not eliminate the least consequential aspects of the NIETC designation process as well as aspects of FERC's application and environmental review process when a proposed or future project will utilize a ROW that already reflects pre-existing industrial or transportation activities and the agreement of the relevant landowner or administrative agency. Nothing about this approach diminishes the need or opportunities for public private partnerships and agreement between or among federal regulatory agencies, as the REC has already argued to FERC.

The salient feature and benefit of an "up front" designation of transportation ROWs is certainty – certainty about where projects can be routed (an engineering as well as environmental concern), greater certainty about the affected stakeholders, certainty about the future of the ROWs, certainty about the extent of ground- or other disturbances, and

even a better idea about the extent of the costs. Utilizing existing ROWs beats all comers with respect to these criteria. The responsibility of DOE and ultimately FERC to protect the public interest will be unaffected even though the conditions upon which the extensive network of existing railroad and highway ROWs can be accessed and utilized for installation of transmission would be, in the first instance, a matter for landowner negotiations (for railroad ROWs) or consideration by state transportation or other appropriate regulatory authorities (for highway ROWs). How and when these transmission facilities are designed or built in these ROWs, their relationship to the grid, local communities, or the proximate environment, to new and installed generating capacity, or to regional planning mechanisms are matters best left to the FERC to evaluate in conjunction with the project developers and ROW owners, regulators, or grid planners. They need not be resolved as a basis for a NIETC designation.

Joint Commenters believe the statute affords DOE considerable flexibility but, in our view, there is little to be gained by basing NIETC designations on the nature or impacts of a potential future proposed transmission expansion. The designation of an existing ROW as a NIETC arguably has no impact until a project that proposes to use it is acted upon. Moreover, absent resort to legal resolution under the statute, a ROW is only available for development subject to agreement of the ROW owner or appropriate regulator.[24] The advantage of a more or less generic NIETC designation approach is expedition. Evaluation of specific projects in relation to these existing ROWs would be conducted at the time and place when a specific project is proposed for FERC consideration.

Joint Commenters contend that FPA §216 affords DOE sufficient latitude and discretion to adopt this limited but proactive approach. In fact, because generic designation would have to be supported by a rulemaking record and is resoundingly consistent with the clean energy and administrative expedition policies underlying FPA §216, we urge moving in this

[24] Joint Commenters believe that DOE and other regulatory bodies that are responsible for transportation safety and efficiency can help define the scope of the ROWs, although transportation ROWs are largely a matter of record, although they may vary in size and other characteristics Experts in the railroad, highway, and electric power industries understand where and in what manner their respective network facilities currently relate to one another.

direction. We concede, of course, that physical limitations or other restrictions on a transportation ROW may inhibit or impact transmission expansion and that developers may find agreement or partnerships unexpectedly hard to create with existing ROW owners or infrastructure regulators, despite DOE's powers of persuasion and the clear direction of public policy. However, the potential benefit to the grid and ultimately to consumers under new siting and permitting laws and GDO's constructive approach can be game-changers if government takes advantage of this opportunity. What should become evident as DOE/GDO begins to implement its NIETC processes, is that generic designation(s) of NIETCs (probably subject to programmatic review under NEPA)[25] will further accelerate transmission development. Joint Commenters commit to working with the affected companies and agencies to advance the plan we propose. The type of partially programmatic approach we propose will result in a savings of time and resources when compared to either case-by-case NIETC designations, followed with case-specific siting determinations, or to the current challenges facing interregional transmission expansion when subjected to uncoordinated reviews and even legislation on a state-by-state basis.

Respectfully submitted,

FOR THE JOINT COMMENTERS

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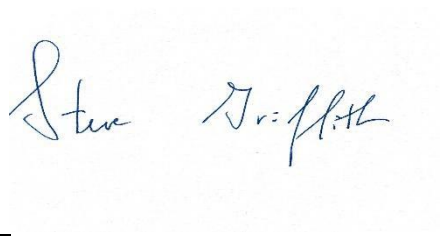
[25] Fiscal Responsibility Act of 2023 (FRA), Pub.L. 118-5.

FOR THE RAIL ELECTRIFICATION COUNCIL



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APPENDICES
TO THE JOINT COMMENTS OF THE RAIL ELECTRIFICATION COUNCIL AND NEXTGEN HIGHWAYS

National Interest Electric Transmission Corridors
Department of Energy Grid Deployment Office

DOE-HQ-2023-0039-0001

The following exhibits illustrate how the geography of railroad and highway systems can support the cost- and time-efficient development of key energy and transportation infrastructures; they represent an important option as the Department of Energy takes on the challenge of designating transmission corridors that are truly in the national interest.

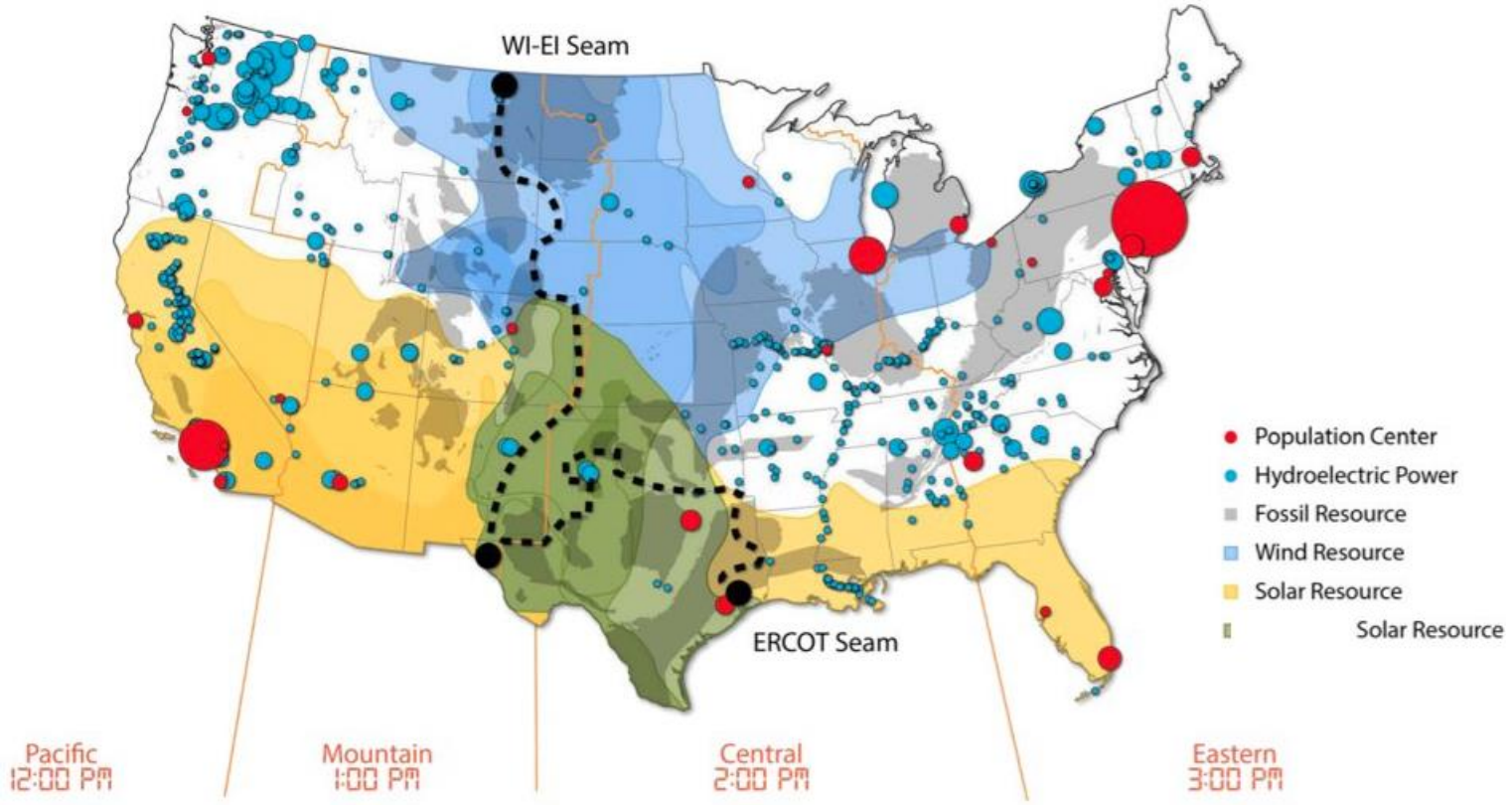
The maps and captions make clear the many ways the nation's 300,000 miles of highway and railroads can serve as an invaluable resource of existing rights-of-way (ROW). Deploying these existing ROWs for energy infrastructure, linear electric transmission in particular, will reduce environmental and community impacts, support the electrification of transportation, and could significantly expedite permitting times and procedures.

Highways and railroads are virtually ubiquitous throughout North America, crossing state, regional, and national boundaries. As such, they have unique value for connecting, wholly or in segments or in combination, remote areas with high quality wind and solar resources to major load centers. In addition, using these ROWs could support efforts to knit the separate electric grids together, expanding options for interregional transmission that will improve resilience in times of extreme weather, grid congestion, or local outages.

Table of Contents

APPENDIX A
Meeting Decarbonization, Demand Growth, and Distributed Generation With HV Transmission

Exhibit A1
Clean Energy Resources Far From Load Centers



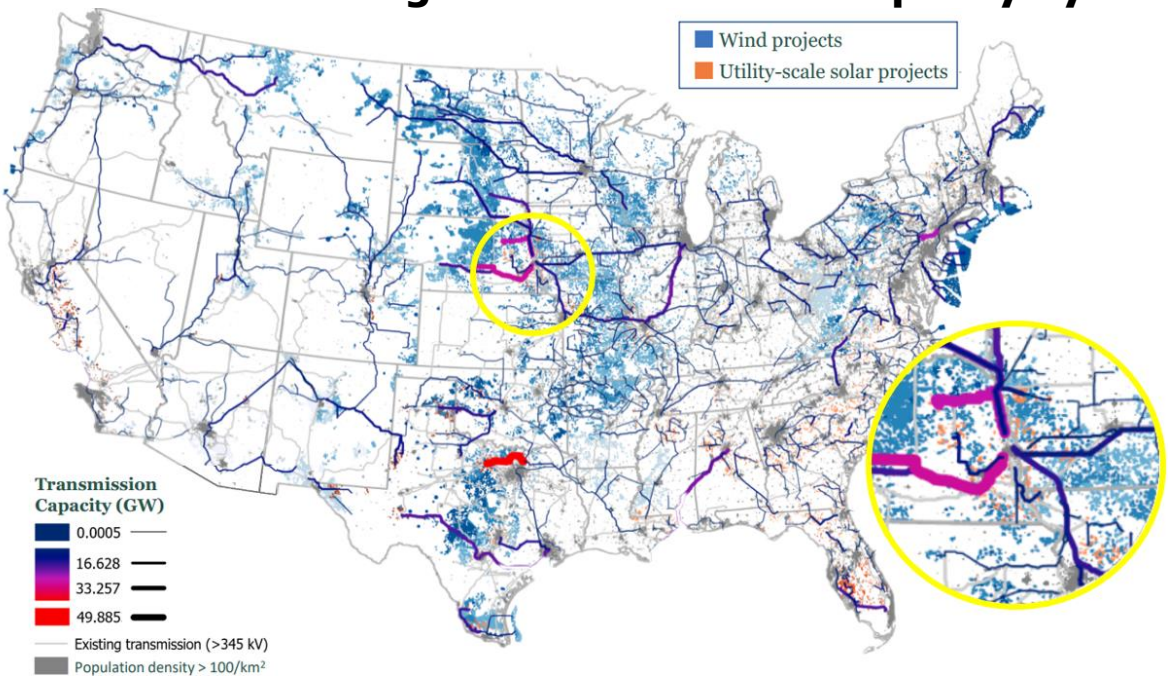
The National Renewable Energy Lab Interconnections (NREL) Seam Study explored solutions for expanding high-voltage transmission to harness abundant renewable resources and balance loads across the country. Blue shading shows areas with greatest wind resource; yellow shading shows areas with the greatest solar resource; and green shading shows areas with wind and solar resource.

Source: National Renewable Energy Lab, Department of Energy

URL: https://www.nrel.gov/docs/fy21osti/78161.pdf

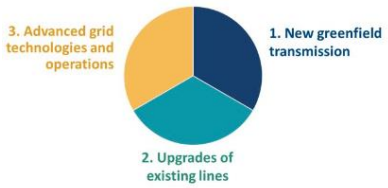
Exhibit A2

Net-Zero America: Doubling U.S. Transmission Capacity by 2050



In a scenario with three Terrawatts of solar and wind capacity operating in 2050, transmission capacity must double over 2020 levels. Capacity increases by 749,000 GW-km, a 234% increase in capacity over 2020. Transmission expansion is mapped to follow existing rights of way (>160 kV); paths are indicative not definitive.

Source: Princeton University, "Net-Zero America: Potential Pathways, Infrastructure and Impacts"
URL: https://netzeroamerica.princeton.edu/the-report

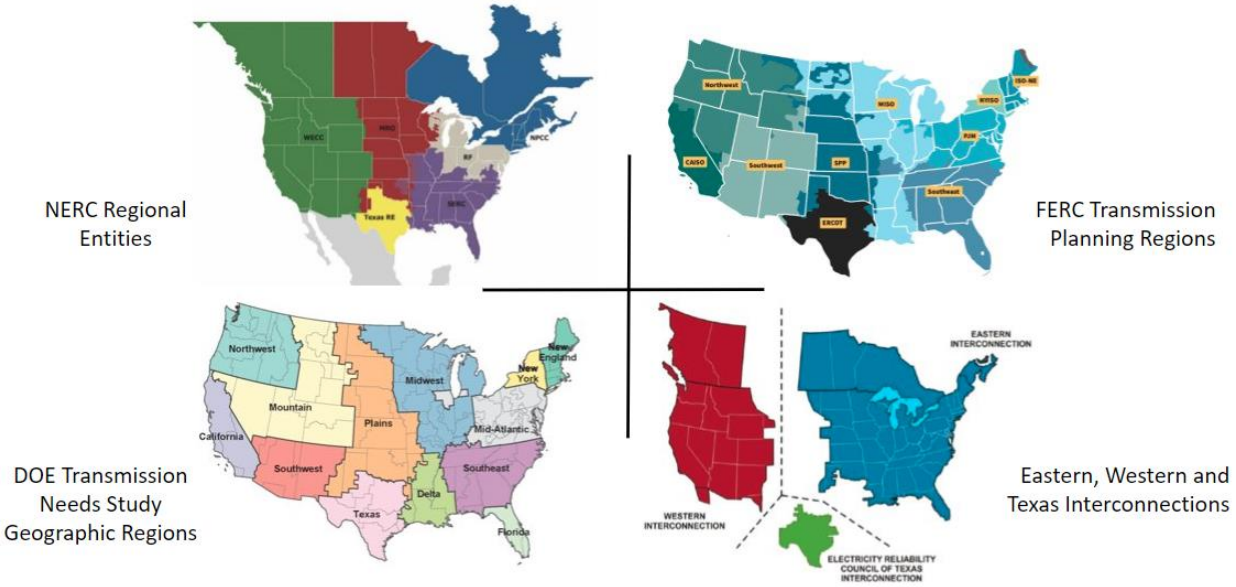


One source estimates that, to double or triple transmission capacity, one-third of the needed additions will be greenfield (i.e., new) lines, one-third will be upgrades to existing lines, one-third of the additional capacity will derive from advanced transmission technologies and innovative grid operations.

J. Pfeifenberger, The Brattle Group

Exhibit A3

Depiction of Multiple Purposes and Organizations Governing the US Grid



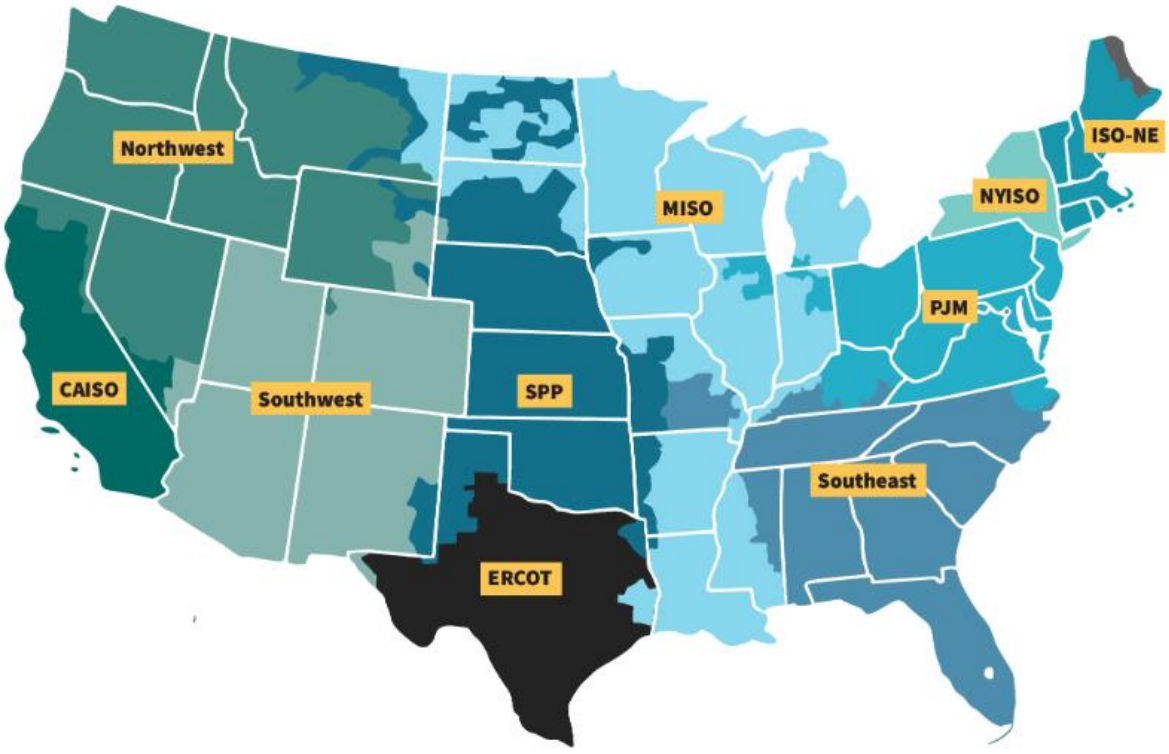
Historical state, market, regulatory, reliability, and grid management boundaries affect how efficiently inter-system and interregional transmission facilities can be planned, financed, built, and operated. Planning and siting major interregional projects will help break down these barriers to grid integration and cost-efficient operations, although addressing local and regional needs will continue to be important. Transmission can be effectively planned to include co-location on historical highway and railroad rights-of-way that often cross these boundaries and represent an opportunity for more expedited and less complicated siting processes and greater interregional coordination.

Sources: (Clockwise from top left) North American Electric Reliability Corporation, "Long Term 2022 Long Term Reliability Assessment"; Federal Energy Regulatory Commission, Power Sales and Markets; Energy Information Administration; Department of Energy, Office of Electricity

URLs: https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_LTRA_2022.pdf; https://www.ferc.gov/power-sales-and-markets/rtos-and-isos; https://www.energy.gov/oe/recovery-act-interconnection-transmission-planning; https://www.energy.gov/gdo/national-transmission-needs-study

Exhibit A4

Regional and Independent Transmission Organizations



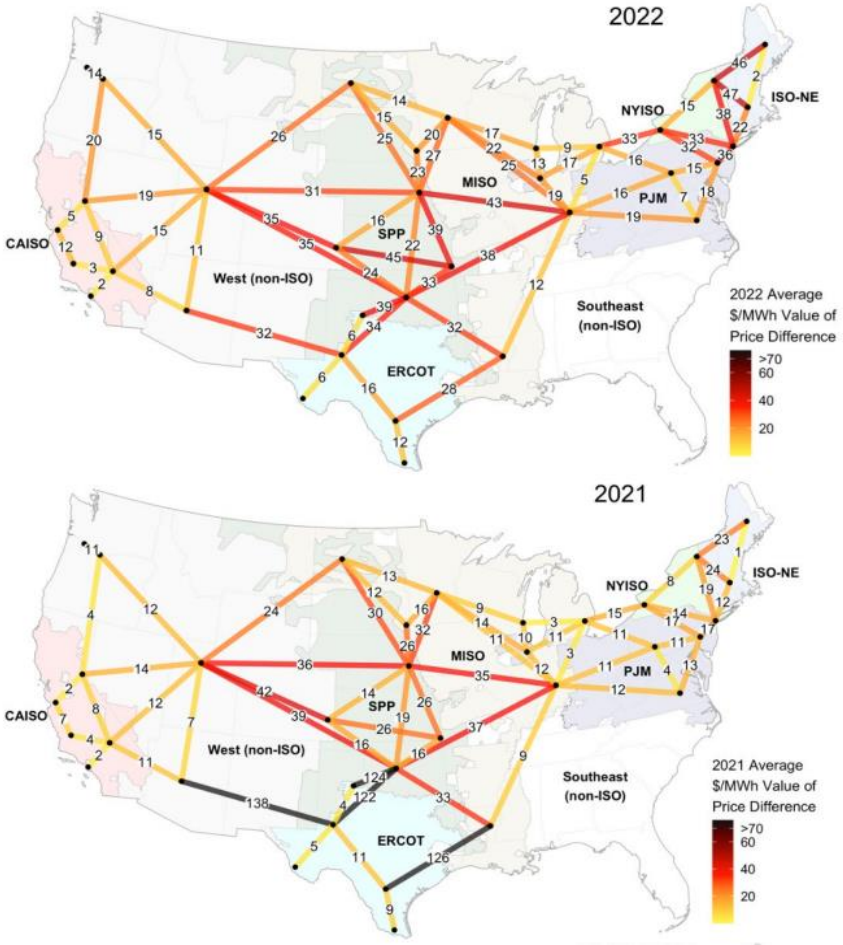
Under the jurisdiction of the Federal Energy Regulatory Commission, the nation's six RTOs and ISOs administer wholesale power markets and plan for the long-term transmission needs of the electricity power system. The Electric Reliability Council of Texas (ERCOT) also performs most of the functions of an RTO, but is not subject to federal (FERC) jurisdiction because its grid is largely separate from the rest of the country. Outside RTOs and ISOs, transmission planning, generation dispatch, and bulk power markets are managed by power marketing administrations, emerging energy imbalance markets, or a holding company structure. Even among these large institutions, policy and regulatory differences, such as the question of which state or customer group pays for lines that facilitate broad power market benefits, prevent the grid from operating as one machine or economically-efficient market.

Source: Federal Energy Regulatory Commission, Power Sales and Markets

URL: https://www.ferc.gov/power-sales-and-markets/rtos-and-isos

Exhibit A5

Grid's Weaknesses Are Reflected in Price Differentials and Lack of Resilience



These and other maps in the "Needs Study" show a pattern of cost increases in bulk power over time, price differentials region to region, and dramatic cost increases due to extreme weather events. Congestion and a lack of transfer capacity between regions places upward pressure on prices. The maps show the average hourly difference in prices between selected hub and zonal nodes within and across regions for 2021 and the first half of 2022.

URL: https://www.energy.gov/sites/default/files/2023-02/022423-DRAFTNeedsStudyforPublicComment.pdf

Source: Department of Energy, "National Transmission Needs Study" (DRAFT)

APPENDIX B
Mapping the US Railroad Network

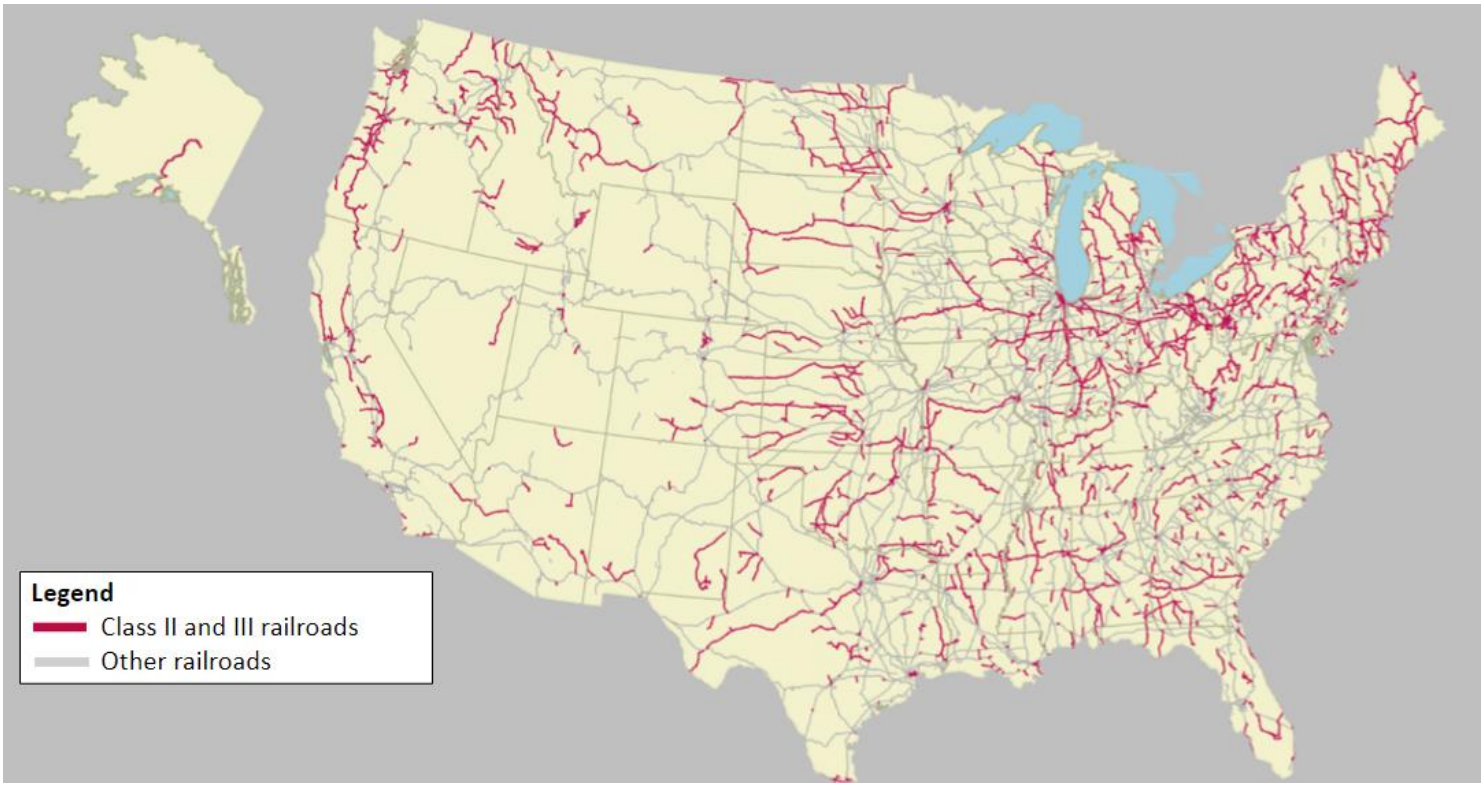
Exhibit B1
U.S. Class 1 Freight Railroads and Other Rail Lines

The U.S. freight rail network is nearly 140,000 miles of railbed. Railroads operate in 49 states and the District of Columbia. Class 1 freight railroads run over about 92,000 route-miles. Some major freight lines like the Milwaukee Road remained electrified until the 1960s with high voltage AC overhead catenary. Today, most electrified rail service is local or commuter passenger rail (transit) or large- scale interregional passenger service in the Northeast (*see* Exhibit B3).

Source: National Transportation Atlas Database (NTAD). For more information regarding this dataset, please refer to the NTAD website at https://www.bts.gov/geospatial/national-transportation-atlas-database.

URL: https://www.arcgis.com/apps/mapviewer/index.tml?webmap=96ec03e4fc8546bd8a864e39a2c3fc41

Exhibit B2
Short Line and Regional Railroads of the United States



The short line freight rail network encompasses 600 small business railroads with nearly 47,500 route miles — or about a third of the total system. These railroads can be found in 48 states, with some just a few miles long and some stretching for hundreds of miles. Short lines may often be strategically positioned to interconnect renewable resources and bridging gaps in other ROWs.

Source: American Short Line and Regional Railroad Association

URL: https://www.aslrra.org/

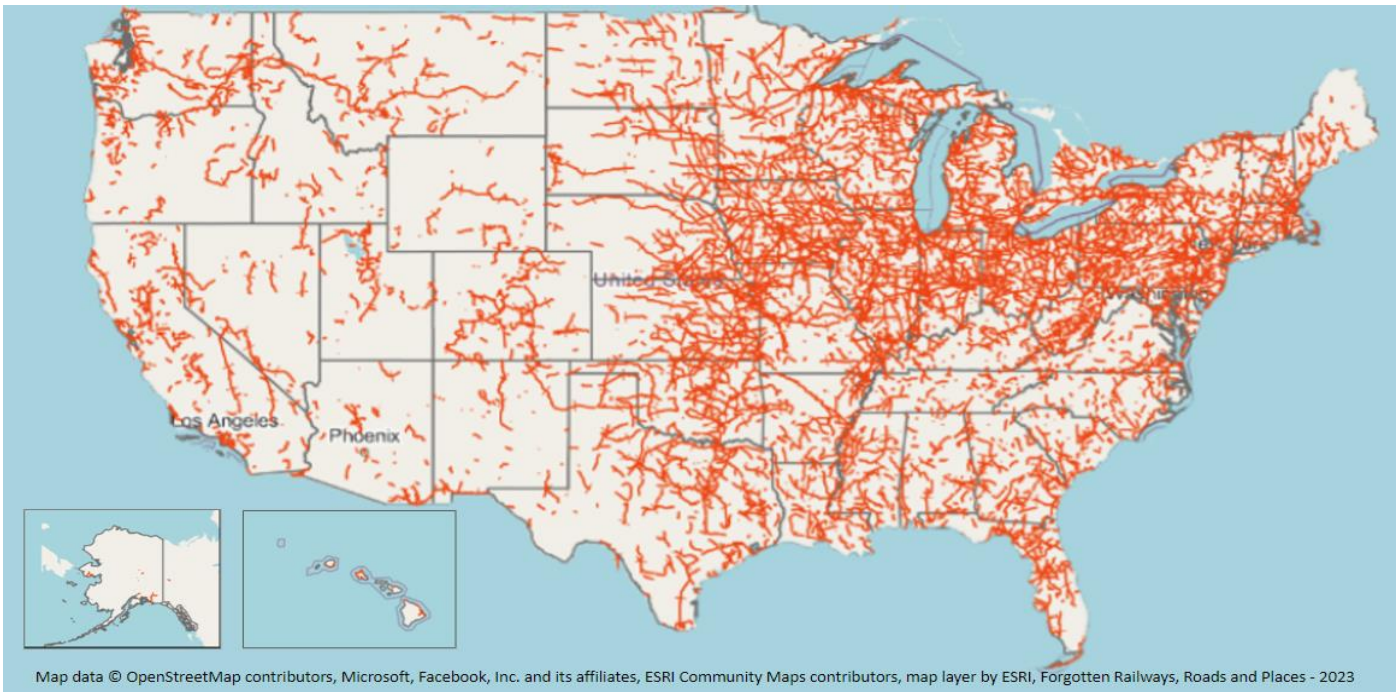
Exhibit B3
Amtrak Network and Route Connectors

Amtrak is a national passenger rail operator with 21,000 miles of rail in 46 states and the District of Columbia, as well as three Canadian provinces. Amtrak's diesel locomotives (240) still far outnumber its electric locomotives (66). However, along the electrified Northeast Corridor, Amtrak operates a 60 Hz traction power system between New Haven, Connecticut, and Boston, Massachusetts. This system was built in the late 1990s and supplies locomotives with power from an overhead catenary system at 25 kV alternating current with a frequency of 60 Hz. The system is also commonly known as the *Northend Electrification*, in contrast to the *Southend Electrification* that runs between New York City and Washington, D.C. Where High Speed Rail is being considered (e.g., California), it represents another phase of rail electrification.

Source: Amtrak, Wikipedia

URL: https://www.amtrak.com/content/dam/projects/dotcom/english/public/documents/Maps/Amtrak-System-Map-1018.pd

Exhibit B4
North American Abandoned Railroad Lines

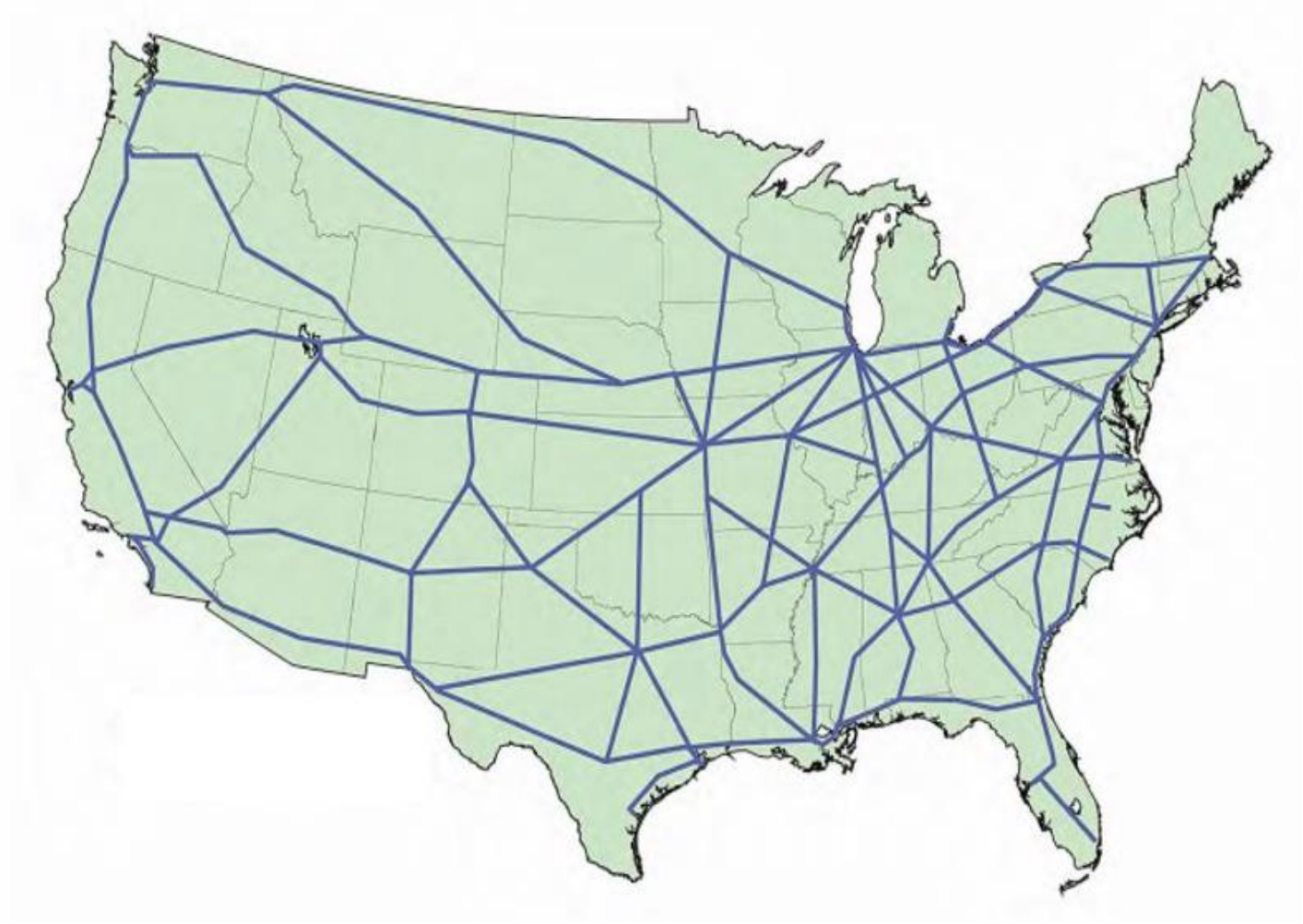


This map shows rail lines no longer in use. These ROWs often still belong to the rail company but are often available for alternative uses. Over its 170 year history, the railroad industry and its ROWs have expanded, contracted and changed hands. This map reflects the density of these unused or abandoned ROWs in the aggregate. Any data used to generate this map is owned and maintained by Forgotten Railways, Roads & Places.

Source: Forgotten Railroads, Road and Places; crowd-sourced data

URL: https://www.frrandp.com/p/the-map.html

Exhibit B5
Strategic Rail Corridor Network (STRACNET)



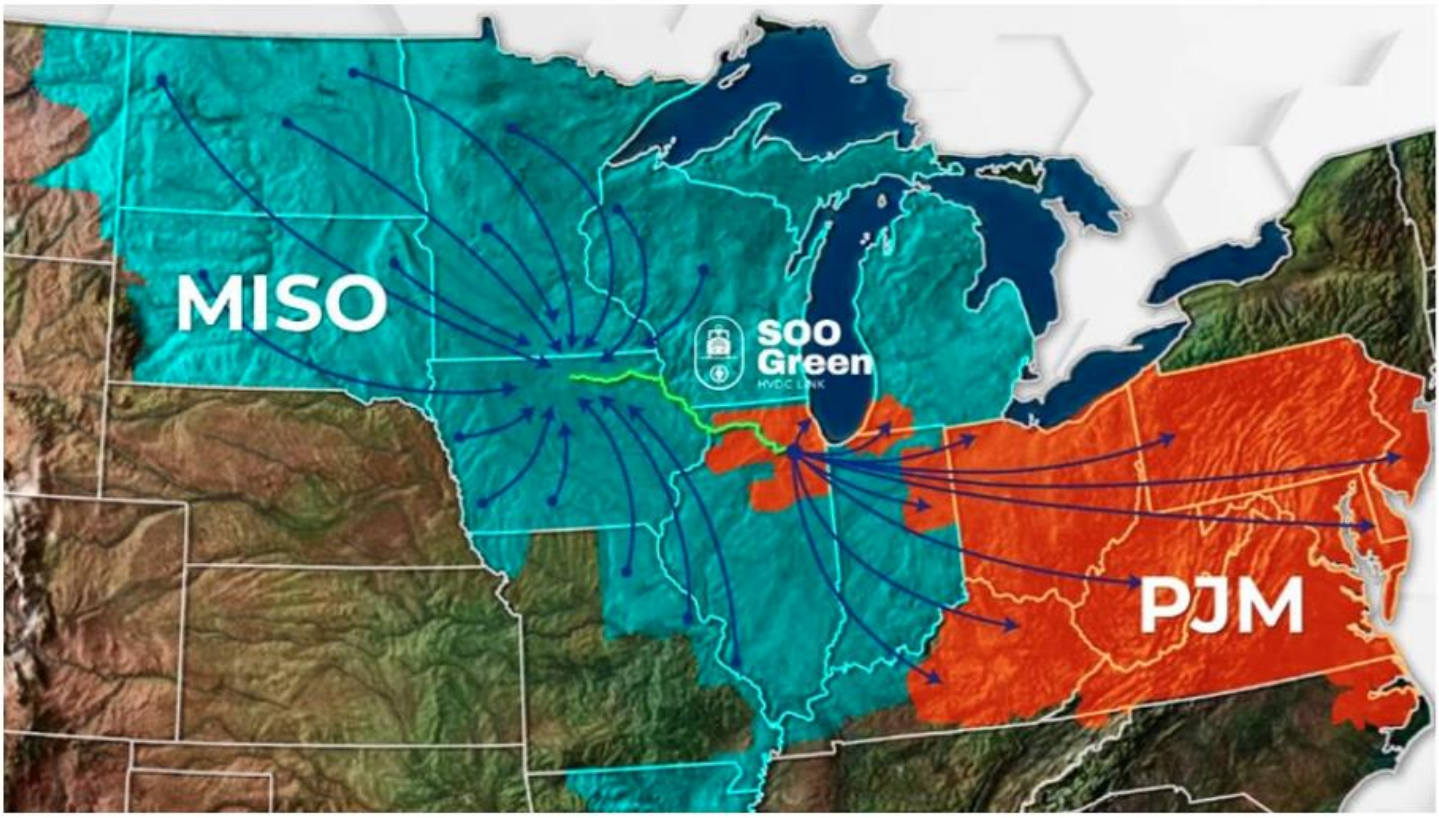
Together, STRACNET and the connectors are the civil rail lines deemed most important to national defense. 126 military installations and activities require rail service to complete their assigned mission. (See also, "Exhibit C3: Strategic Highway Network.") Co-locating two critical infrastructures may provide important transportation and energy services in a single right-of-way. As military installations increasingly use renewable energy (onsite and offsite), this can enhance reliability and contributions to climate change mitigation.

Source: US Army Transportation Engineering Agency

URL:https://www.sddc.army.mil/sites/TEA/Functions/SpecialAssistant/RND%20Publications/STRACNET%202023.pdf

Exhibit B6

An Example of HVDC Transmission on Existing Railway ROWs: SOO Green HVDC



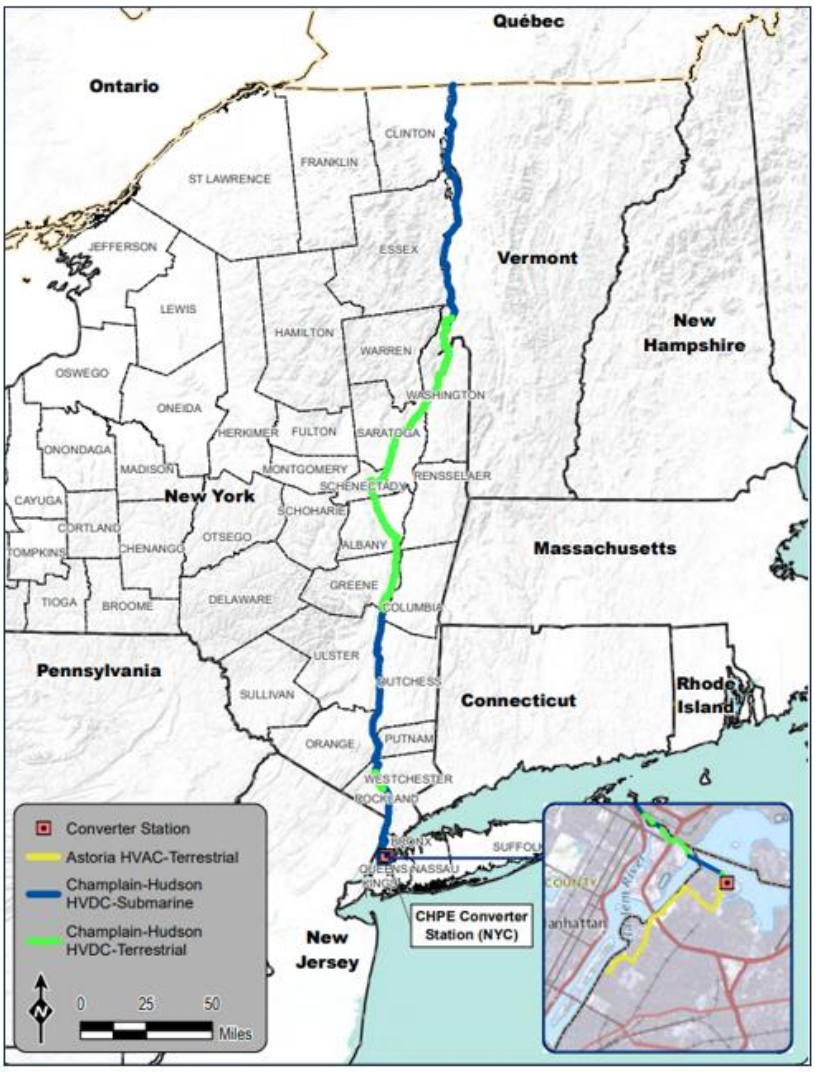
SOO Green HVDC Link will install most of its 525 kV transmission 350-mile route along existing railroad rights-of-way, utilizing the rights-of-way of Canadian Pacific Railway and parts of three other railroad companies. The new line, when energized in 2029 will transmit 2000 MW of renewable energy to eastern market.

Source: SOO Green HVDC Link

URL: https://soogreen.com/

Exhibit B7

Example of Transmission Co-location Partly Along Highway & Railroad: Champlain Hudson Power Express



The project will locate transmission under water and underground utilizing waterways (60 percent), existing road and railroad rights of way to diminish aesthetic impacts and enhance reliability. Two five-inch-diameter cables will be placed underwater and underground and run 339 miles from the U.S.-Canadian border, south through Lake Champlain, along and under the Hudson River, and eventually ending at a converter station in Queens.

Source: Champlain Hudson Power Express
URL: https://chpexpress.com/project-overview/route-map

APPENDIX C
Existing Highway Rights of Way Across North America

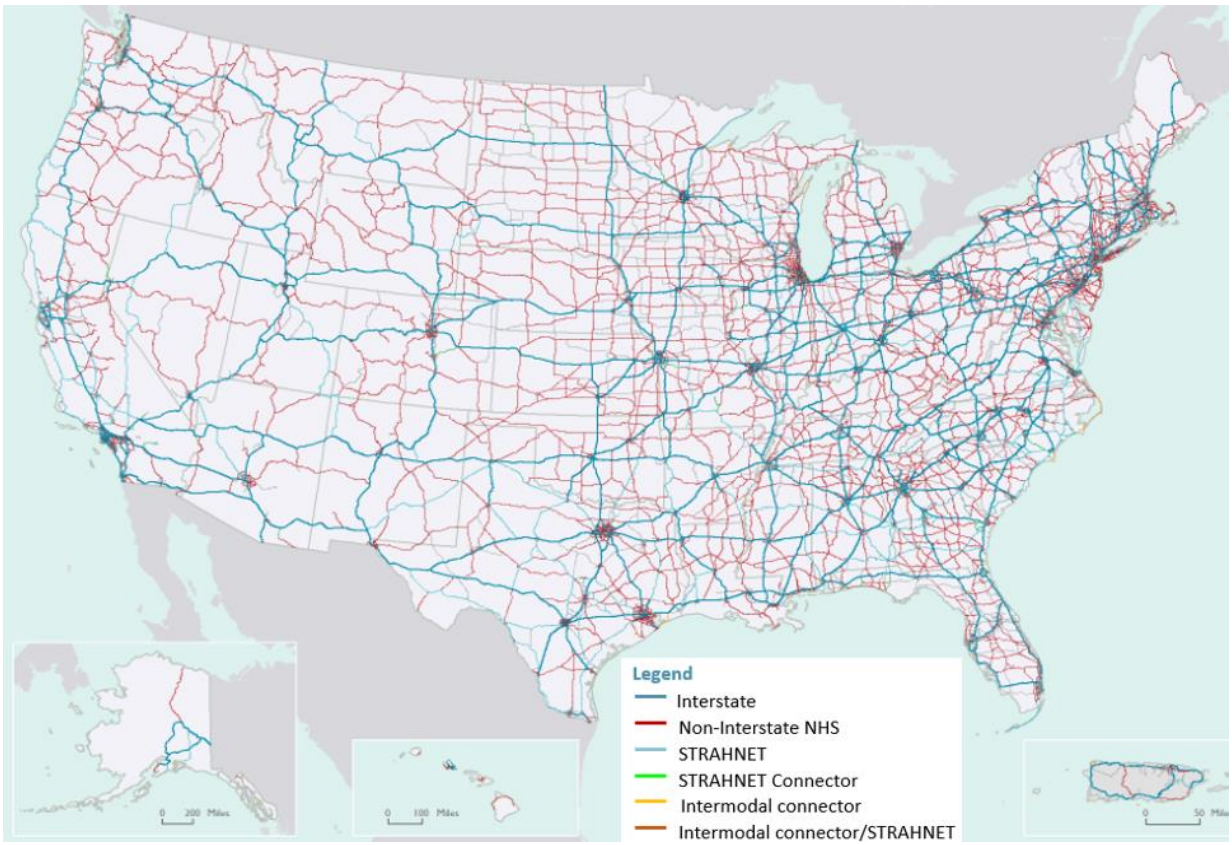
Exhibit C1
Dwight D. Eisenhower System of "Interstate and Defense Highways"

President Eisenhower believed a modern, transcontinental highway system is essential to a strong national defense. In 2021, the Federal Highway Administration issued guidance on the use of the federal highway ROWs for renewable energy generation, electrical transmission and distribution projects, broadband projects, vegetation management, inductive charging in travel lanes, alternative fueling facilities, among other uses. This network was designed to connect regional resources with markets, and renewable energy could be such a resource. (See also, Exhibit A1)

Source: US Department of Transportation

URL: https://www.fhwa.dot.gov/real_estate/right-of-way/corTridor_management/alternative_uses_guidance.cfm

Exhibit C2
National Highway System

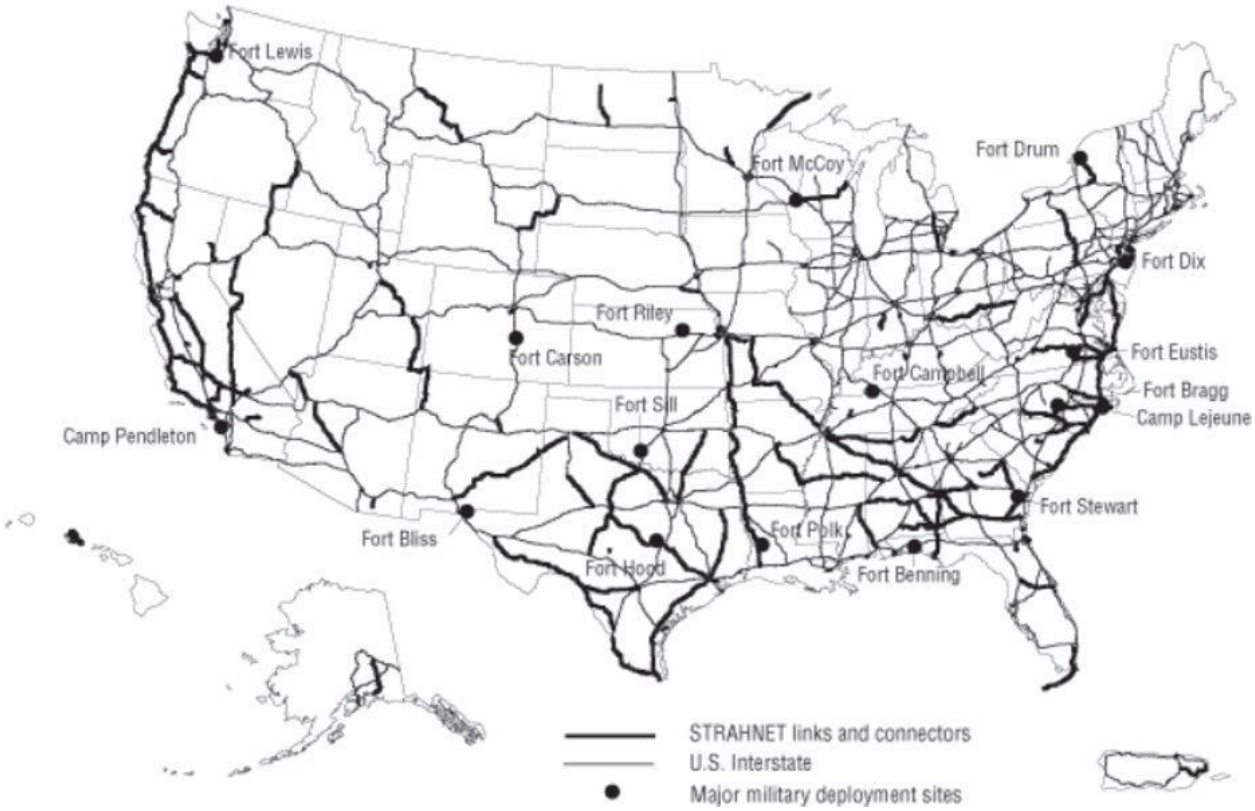


The National Highway System includes 160,955 miles of roadway important to the US economy, defense, and mobility. The entire Interstate Highway System of controlled-access highways (marked in blue) is included in the NHS but retains a separate identity. It could provide a potentially ubiquitous network of transmission rights-of-way subject to state and federal regulation.

URL: https://www.bts.gov/geography/geospatial-portal/national-highway-system-intermodal-connectors-and-principal-arterials

Source: U.S. Department of Transportation, Federal Highway Administration

Exhibit C3
Strategic Highway Network (STRAHNET)



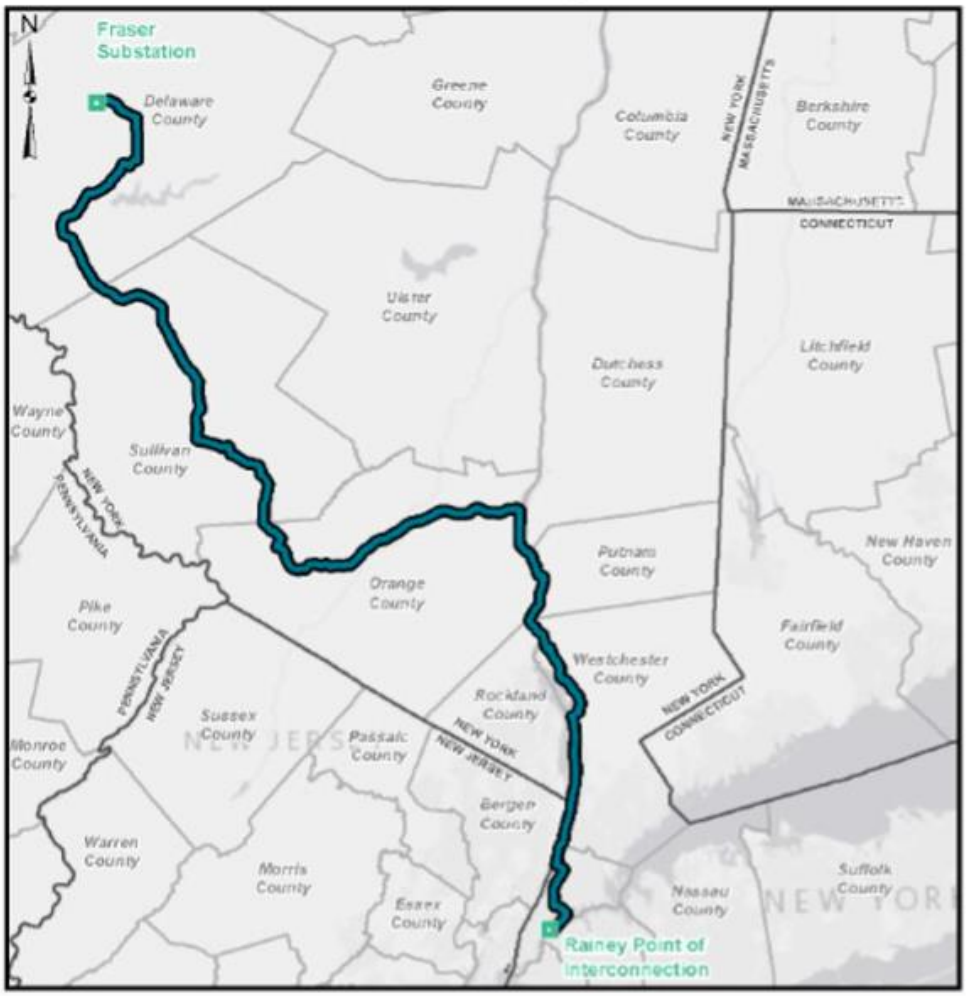
STRAHNET is the entire network of highways important to the United States' strategic defense policy, providing defense access, continuity, and emergency capabilities. Major Strategic Highway Network Connectors are highways which provide access between major military installations and the routes that make up STRAHNET.

Source: US Army Transportation Engineering Agency

URL:https://www.bts.gov/archive/publications/transportation_statistics_annual_report/2001/chapter_05_map_124

Exhibit C4

Buried HVDC Lines and Existing ROW – Clean Path New York as an Example



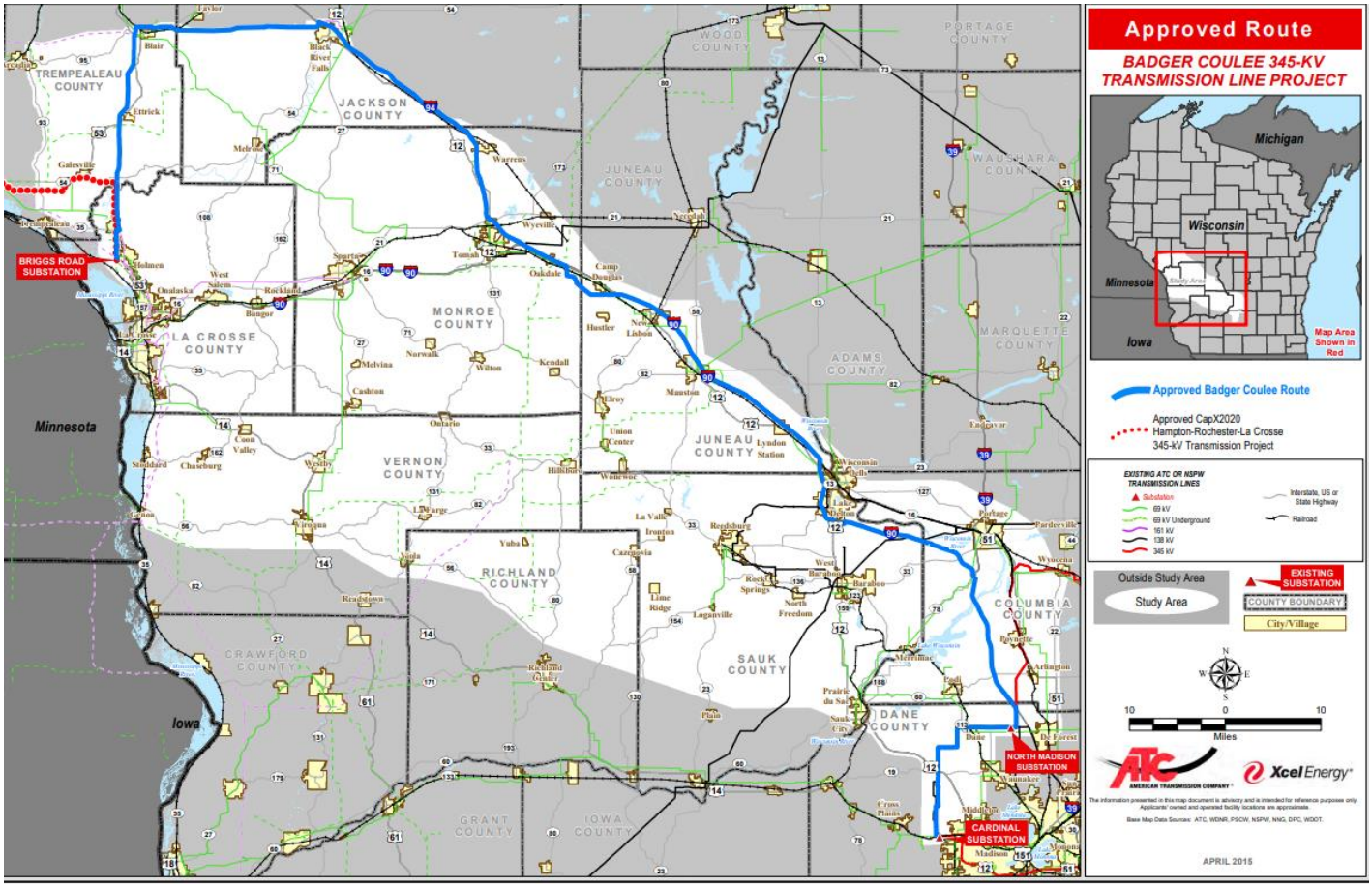
CPNY will deliver over 2,000 MW of new wind and 1,800 MW of new solar generation over a new 1,300 MW transmission line into New York City. CPNY's 1,300 MW HVDC transmission line, built entirely underground, utilizing existing rights-of-way, will be more resilient in the face of increasingly extreme weather. By using existing rights-of-way, CPNY should diminish any potentially adverse environmental and community impacts of building new transmission and thereby accelerate the time for development.

Source: Clean Path New York

URL: https://www.cleanpathny.com/

Exhibit C5

Above-Ground HVAC Using Highway ROW – Badger Coulee Line



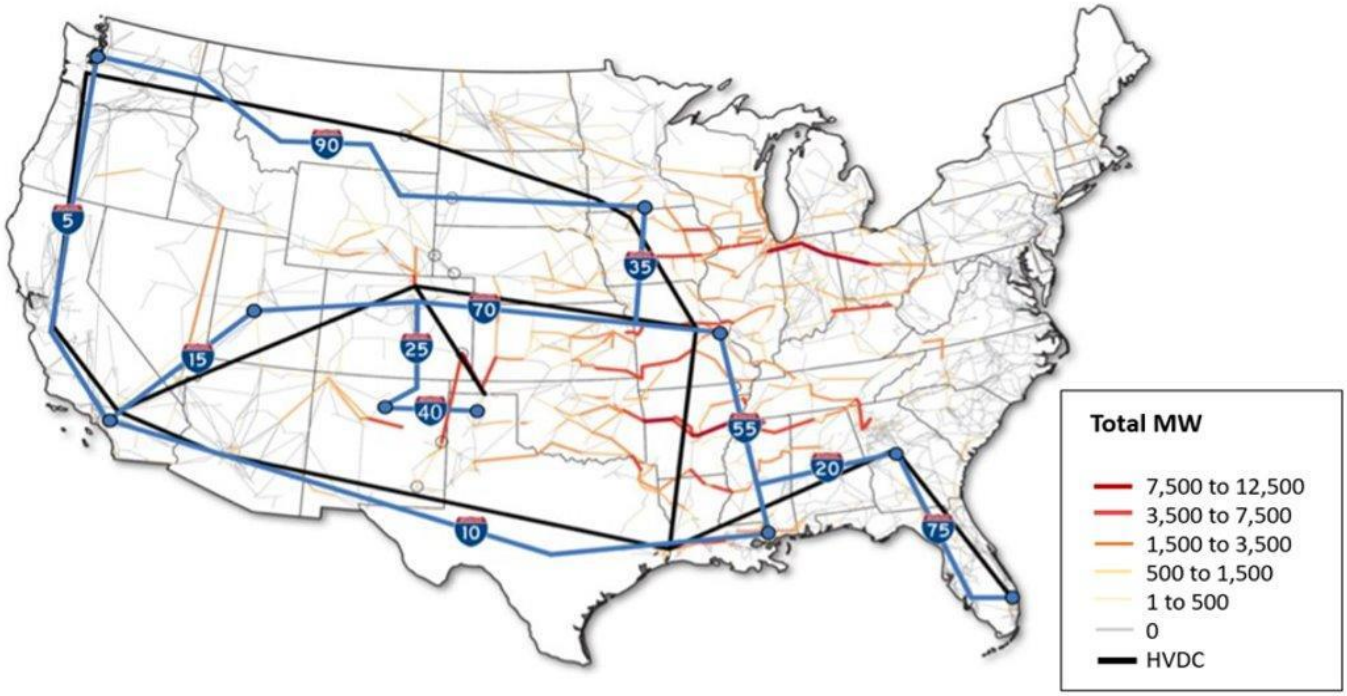
Wisconsin's 180-mile above-ground HVAC transmission line was built largely along the Interstate 90/Interstate 94 right of way. American Transmission Co. and Xcel Energy Inc. worked with the Wisconsin Department of Transportation early in the development process to identify a rough corridor in which the line could be sited. The transmission line addresses local electric system reliability issues and supports renewable energy policy. This experience demonstrates the practicality of co-location.

Source: American Transmission Company

URL: http://www.atc-projects.com/wp-content/uploads/2015/04/Approved-Project-Map-04162015.pdf

Exhibit C6

HVDC Macro Grid and Interstate Highway System Overlay



A "macrogrid" is a high voltage (usually direct current) transmission overlaying and tying together the extensive AC transmission and distribution grid which largely operates at lower voltages. It would be capable of moving vast amounts of power across multiple markets, interconnections, and states to meet demand and ensure reliability. The National Renewable Energy Laboratory's "Interconnections Seam Study" in 2016 analyzed the benefits of a high-voltage HVDC macrogrid (four scenarios) that would tie the nation's separate electric grids together, allowing for two-way power flow across the continental United States. This exhibit conceptualizes how highway ROWs could be deployed to support a macrogrid. Highway and railroad rights-of-way are uniquely suited to support the macrogrid because of the size and capacity of such a large project would require rights-of-way in multiple jurisdictions and markets.

Source: Aceveda, Figuero, et al., "Design and Valuation of High-Capacity HVDC Magrogrid Transmission for the Continental US," IEEE Transactions on Power Systems, IEEE Xplore Early Access. DOI 10. 1109/TPWRS.2020. 2970865, 2020; also, NextGen Highways