NATIONAL ACADEMY OF SCIENCES, ENGINEERING, AND MEDICINE
"REINVENTING THE RIGHT OF WAY: POLICY, TECHNICAL, AND ECONOMIMIC IMPLICATIONS OF SITING [ELECTRIC] TRANSMISSION LINES ALONG TRANSPOTATION CORRIDORS

GRID DEPLOYMENT AND RAILROAD RIGHTS-OF-WAY

Jim Hoecker, Husch Blackwell LLP and Hoecker Energy Law & Policy
On behalf of
The RAIL-GRID COLLABORATIVE
April 7, 2025

Good afternoon. This wrap-up session focuses on two illustrations of what our previous panels discussed – how transportation rights of way can be used to facilitate the development of the electric grid, how different transport modes (freight rail and highway ROWs) perform that function differently, and why this is important to fulfill the public interest in a larger, more integrated transmission system.

The Academy deserves our thanks for recognizing the importance of permitting and siting as a critical avenue for ensuring the strength of the grid going forward. That's because planners and policy makers have for so long focused only on WHETHER we need to expand the grid, WHAT kind of transmission is needed, WHY it's important, HOW MUCH to build and HOW BIG, the near-term and long-term impacts, and the inevitable WHO PAYS. All this without confronting the issue of WHERE the facilities can be most productively placed in accordance with environmental law and property rights. The division of regulatory responsibility in our federal system made it easy to neglect the issue or to regard siting and permitting as someone else's responsibility.

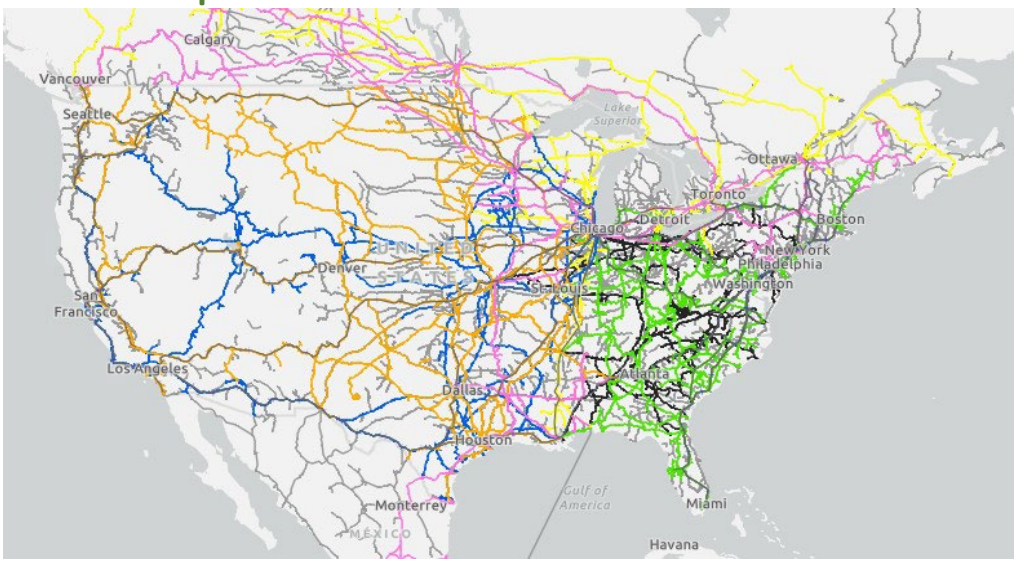
Today's sessions, on the other hand, have made clear that major new transmission additions is necessary for energy delivery to distant load,

reliable low-cost service, system resilience in the face of extreme weather, access to renewables, and broader, more mature bulk power markets across state, regional, and market boundaries. The interregional transmission so widely supported today was nowhere in evidence in planning circles during and since Order 1000. Transmission development and regulatory processes continued to drag on for 7, 10, 15, or more years (compared to 3-5 years for major pipeline authorizations) in large part because of siting and permitting problems. New planning regimes, redoing or undoing NEPA processes, promoting (often unwieldly) interagency coordination, and making theoretical corridor designations haven't helped, yet! Many transmission projects have simply gotten stuck – in state legislatures, regulatory agencies, courts, poor stakeholder processes, and in eminent domain litigation – or were cancelled. Meanwhile, existing ROW owners that were capable all along of hosting grid facilities and relieving them of some bureaucratic burdens and related expenses, were ignored or remained uninvolved in such infrastructure questions.

So, now we're taking a fresh look at why existing ROWs should not be sidelined. My case studies are examples of electric transmission being sited along rail ROWs. That model may not obviate all conceivable challenges -- electrical engineering challenges, grid impacts, complications for railroad operations, and tax, real estate title, and cost challenges must unquestionably be dealt with when they arise. But co-location can work! And work profitably!

Even a cursory glance at maps of ubiquitous US rail ROWs – both those actively in service and otherwise retired or abandoned – reveals a landscape of vast OPPORTUNITIES that consist of networks of linear real estate ROWs that overlap many if not most interregional transmission line routes that the nation needs so desperately to build on and utilize, especially for interregional infrastructure. It is important to recognize that not all ROWs have the same dimensions or are capable of safely hosting non-railroad infrastructure. A ROW may already contain other sensitive structures, such as electrical equipment, pipelines, or fiber optics. Finally, because ROWs originated (often as government land grants) as much as 150 years ago, a railroad's rights to use or alienate that property may be quite complex. That said, few doubt the potential for greater shared use of railroad ROWs.

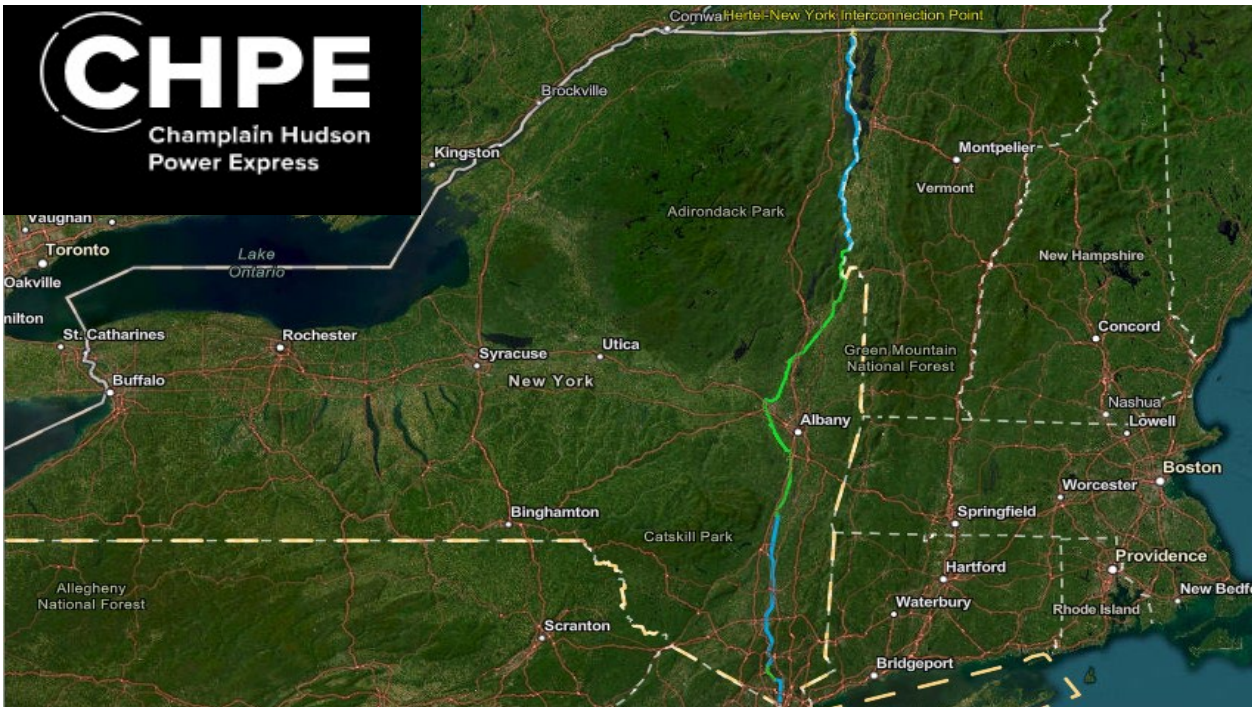
The US Rail Networks:
Operational and Abandoned



Two pioneering transmission projects, one under construction, that are bringing railroads into the grid conversation, for everyone's benefit. They demonstrate the feasibility of co-locating HVDC along the linear ROWs belonging to railroads --

Champlain Hudson Power Express (CHPE)

This New York project is sited along 100+ miles of CSX railbed. Has an important role in hydropower energy imports, and runs entirely in NY (now, 60+ % constructed) A 1,250-megawatt (MW), high-voltage direct current (HVDC) voltage source converter controllable transmission system, comprised of one (1) 1,250-MW HVDC bipole. The transmission line would cross the international border from Canada into the United States underwater in Lake Champlain, in the Town of Champlain, New York, and extend approximately 336 miles (541 kilometers) south through New York State to Queens County, New York. CPN: The state's new Climate Leadership and Community Protection Act (CLCPA) requires that New York be powered by 70 percent renewable energy by 2030. The CHPE is permitted and expected to be fully operational in spring of 2026, delivering 1,250 MW of low-cost renewable power directly into the New York Metro area.



SOO Green HVDC LINK

The SOO Green project takes advantage of at least three railroad ROWs. Sited along CP, BNSF, Illinois Railway lines, the line has been approved by Iowa regulators and Illinois authorities. The innovative transmission line would run underground along railroad rights of way, delivering 2,100 MW of wind power from the Midcontinent Independent System Operator (MISO) into the PJM Interconnection, the regional transmission organization (RTO) that runs the grid and wholesale electricity markets in 13 Mid-Atlantic and Midwest states, plus the District of Columbia. Until recently stuck in a complaint case involving interconnection processes, SOO Green has persisted and expects to be electrified by 2029 or 2030.

SOO Green HVDC LINK

CONSTRUCTING UNDERGROUND HVDC IN RAIL CORRIDORS

KEY OBSERVATIONS

Let me acknowledge that the stated purposes of transmission projects vary by region and market needs. These two projects I cited as examples of co-location are being developed under a merchant (non-utility) business

model that has attracted significant investment. When located in "brownfield" private property, the projects offer potential relief from certain state and federal (and local) regulatory review burdens that have slowed or killed development of electric infrastructure in other cases. A major argument in support of these projects also involves facilitation of the transition to a lower-carbon future and their contribution to knitting the electric system together interregionally at the bulk power level. More localized transmission co-location can also provide 'last step' interconnection or access to load in congested urban or industrial areas where rail often pre-exists. Our group has shown that an array of benefits to citizens affected by high rates, emissions, or the threat of extreme weather may flow from grid expansion along the often-interregional railroad or highway systems as well as more limited projects.

Of course, beyond HVDC co-location within linear ROWs, railyards and ownership of other real property assets may give railroads additional potential opportunities to leverage their strategic assets for additional revenues and creamy returns. Rail can also deploy potential alternating current (catenary) and energy storage (batteries) applications within their ROWs for motive power. New co-located electric generation can a contribute to the grid and other forms of transportation mobility. In a nutshell, it is railroads' private ownership of a vast interconnected network of real estate holdings that differentiate the potential commercial development opportunities along those rail lines from transmission co-location along a publicly-owned and DOT-regulated highway system, which poses a different set of regulatory challenges. Other existing ROWs such as pipelines and established transmission corridors may work as well in some limited circumstances.

If nothing else, the two projects show that entrepreneurship is alive and well in the power business. I think this can be just the beginning of public-private partnerships and inter-sector joint actions that could marshal the major new investment needed for a 21st Century grid. There is no reason that railroads (and state and federal highway regulators) cannot be players in this historical infrastructure development cycle. When I hear today's railroad executives suggest it's time for that industry's to "pivot to growth," I am persuaded that such a strategy would be more compelling and more successful if it included both an assessment of new roles for electric power applications and better exploitation of railroad real estate assets.

That said, let's acknowledge that transmission co-location, while often feasible and profitable, is not on the priority 'to-do' lists of Class 1 freight lines today. Their enthusiasm for even partial system electrification is even more modulated! Safety and operational disruption concerns, fear of new debt, interoperability factors, and eroding returns or market shares have often slowed or frustrated innovation. But, as a recent study by the University of Texas shows, more reliance on the grid for power (catenary) and on transmission co-location could be a big win-win for railroads and power suppliers in many cases. That gives me additional confidence that railroads of all classifications can both utilize and facilitate the power grid, first by leasing access to their linear real estate or rail yards. If you remember anything from my remarks, I hope decide to check out the UT study – *"Cost and Benefit Risk Framework for Modern Railway Electrification Options," available on the FRA website,* for a glimpse of how railroaders can exercise forward-looking business judgment. The study is not an electrification mandate; it is instead a directionally significant, data-driven re-appraisal of how electrification and co-location can make business sense for rail transportation and the future of the electric grid at the same time, if implemented creatively.

To ensure that this National Academy session on "reinventing the right of way" isn't one-off and forgotten, the new RAIL-GRID COLLABORATIVE -- the successor to the work of the Rail Electrification Coalition over the past 5 years – plans to carry today's discussion forward. The RGC will need railroad companies, suppliers, shippers, contractors, and workers to weigh in. It will need electric transmission and generation supporters. Its broad agenda will entail conducting studies, engaging in collaborative discussions and regulatory proceedings, and facilitating commercial opportunities that yield real GROWTH and sustainability for both railroads and the grid. RGC proposes to work to impress upon elements of both industries (and on state and federal policy makers) the advantages and benefits of forward-looking collaboration as an important supplement to the urgent reforms of environmental review laws and regulations that have frustrated infrastructure development. The Collaborative aims, in part, to continue this NAS conversation about reinventing siting along existing brownfield ROWs.

So, JOIN US! If anyone wants to throw their support behind this effort or would like more information about participation in RGC, I'm available anytime.

RAIL-GRID COLLABORATIVE

PROMOTING BETTER UTILIZATION OF EXISTING TRANSPORTATION RIGHTS-OF-WAY AND OTHER ELECTRICAL APPLICTIONS, for

- More Efficient, Flexible Transportation and Supply Chains
- A Stronger, More Integrated, Cleaner Electric Grid
- Technological Exploration & Development
- More Collaborative, Consensus-Based Policy Making

CONTACT US at Rail-Grid.org or Jim@rail-grid.org
or 202-378-2316