



Macro Grid Initiative

An ACORE Program

Energy Assurance Depends on a Resilient Transmission Grid

Resilient electric power is essential to our energy security. A more robust, high-voltage transmission network would help ensure U.S. military bases and first-response emergency services in their surrounding communities remain fully operational at all times. Strategic investments in a high-voltage transmission backbone system would add new capacity and flexibility, enabling the system to withstand extreme weather events and other physical threats. More transmission capacity connecting U.S. grid regions is also necessary to ensure a reliable, low-cost power system. Both winter and summer weather have recently stressed the Texas grid, which has the lowest interregional transmission transfer capacity in the nation, making it more susceptible to extreme weather, according to a recent [analysis](#) from the Niskanen Center. Transfer capacity is limited in other regions too, particularly from New York down to Florida and from the Great Plains states to the Southeast. Expanding transmission to tap the nation's lowest-cost energy resources to serve our growing electricity demand is vital for our economic well-being.

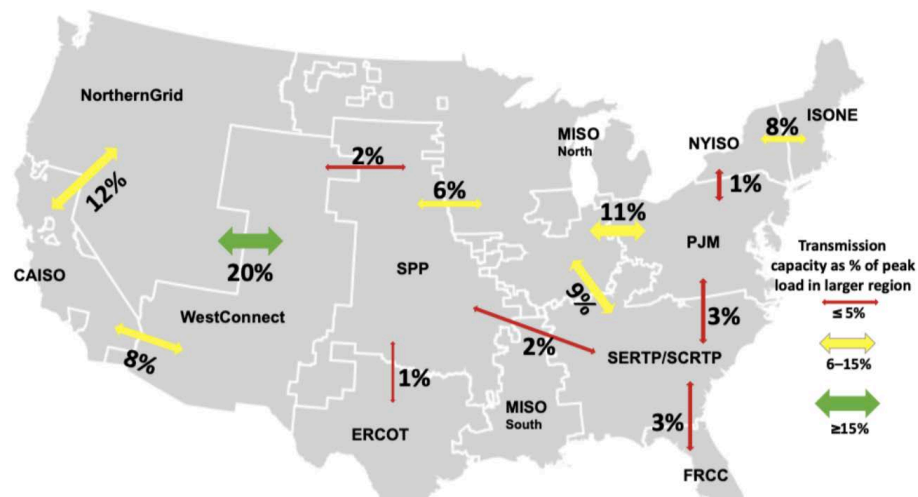
Transmission expansion can ensure reliable electric power for military bases and the people and communities supporting them

The Department of Defense runs global military operations from U.S. bases, which require a resilient and dependable power supply to ensure mission readiness. To complement on-base generation and microgrids, a reliable and resilient power grid is vital to support the thousands of military workers working and living on- and off-base, and the goods and services supporting these US bases and the surrounding communities. Extreme weather events are increasing in frequency and severity and are already the principal contributor to the recent increase in the duration of U.S. power outages. Interregional transmission can enhance grid reliability and resilience and enable consumer benefits in extreme weather scenarios, according to a recent [report](#) from General Electric International.

Expanded regional and interregional transmission can ensure reliable electric power in the face of new and changing threats

Power systems are subject to an increasing variety and magnitude of threats. While traditional reliability protocols plan for reliable operation during and after system contingencies, such as large generator or transmission line outages, changing threats call for more robust regional and interregional transmission. A [report](#) by national security experts noted: "Our electricity grid's resilience – its ability to withstand shocks, attacks and damages from natural events, systemic failures, cyberattack or extreme electromagnetic events, both natural and man-made – has emerged as a major concern for U.S. national security and a stable civilian society." The report points to large-scale transmission as a solution.

Lack of transfer capacity leaves some regions more vulnerable



Estimates based on matching firm transfer capacity between EPM Integrated Planning Model regions to FERC Order 1000 regions. Some regions are combined due to lack of available data. BANC and LAWP excluded. Analysis by Carbon Impact Consulting.

NISKANEN
CENTER

“Transmission buildout is critical to resilience as it can relieve line overloading – or ‘congestion’ in industry jargon – on the existing system, lessening the compounding risks that come with a strained grid that could then be tested by an extreme weather event or an attack incident. Moreover, by enabling further development of renewable energy resources over wider geographic areas, well-planned transmission expansion can make targeted attacks on the grid more difficult to plan and carry out.”

National Commission on Grid Resilience, “Grid Resilience: Priorities for the Next Administration” (2020).

Interregional transmission lines provide regional grid operators significant resilience benefits



Grid operators have confirmed that transmission connecting large geographic areas saves billions of dollars annually by reducing the need for power plant capacity because of reduced variability in electricity supply and demand, according to a [report](#) from Grid Strategies and ACORE. Transmission planning processes often fail to account for the significant resilience benefits and cost savings these projects provide. Transmission planners should calculate potential resilience benefits when developing long-term transmission plans. A transmission line will almost certainly offer critical electricity supplies during at least one severe weather event in its 50+ years of operation. Joint planning across interregional systems that recognizes system resilience is a proven transmission planning practice, according to a 2021 [report](#) from the Brattle Group and Grid Strategies. To ensure long-term energy assurance, resilient transmission networks – including interregional transmission lines – are critically necessary.

CONTACT



acore.org/macro-grid-initiative



twitter.com/TheMacroGrid



[linkedin.com/company/
macro-grid-initiative](https://linkedin.com/company/macro-grid-initiative)



macrogrid@acore.org
