

ELECTRICITY DEEP DIVES

Building the Macro Grid

Overview

We need to bolster the reliability and resilience of the current U.S. power system, enable the use of more renewable energy sources such as wind and solar, and help provide the necessary infrastructure for wide-area power exchange across the country. As such, the federal government should support the development and deployment of a national macro grid that can expand transmission infrastructure within and among the three major North American grids (Eastern, Western, and Texas).

While building a robust interstate transmission network is clearly in the national interest, most transmission permitting is currently handled by state and local authorities. In addition, the federal government's limited backstop siting authority (authorized by the Energy Policy Act of 2005) is not being successfully utilized. As part of a 21st century macro grid policy, Congress should fix flaws in the current permitting regime, grant federal oversight authority comparable to its oversight of interstate pipelines, and permit new rights of way. Congress should also continue to include critical environmental considerations in transmission planning and development.

Under a comprehensive macro grid policy, the federal government can seek to use existing rights of way for transmission use and proactively facilitate permitting for energy transmission on federal lands where it is appropriate. In addition, the Department of Energy's (DOE's) Power Marketing Administrations (PMAs) (BPA, WAPA, SWPA, SEPA) can plan, build, own, and operate significant parts of the macro grid. These PMAs already own tens of thousands of miles of high-voltage transmission lines, have already been granted financing and development authority by Congress, and have considerable experience developing, owning, and operating transmission lines in the public interest.

Federal agencies can also assist states in the development of mutually acceptable routes for multi-state lines and provide technical assistance grants to accelerate the planning and rollout of the macro grid.

Principles

Strengthening Federal Planning Authority: Congress should clarify and strengthen the authority of the Federal Energy Regulatory Commission (FERC) to require regional, inter-regional, and interconnection transmission planning. For its part, FERC should plan for the development and rollout of a seamless national grid. These plans should account for state energy policies, including clean energy requirements, as well as utility resource plans and the preferences and locations of retail energy users. In addition, Congress should direct federal PMAs to take the lead in planning parts of the macro grid and authorize technical assistance grants so that states can improve their transmission capacity and coordination. Congress should also expand the goals of DOE's National Interest Electric Transmission Corridors program to include reducing greenhouse gas (GHG) emissions.

Accelerating Permitting: Building on the Energy Policy Act of 2005, Congress should enhance FERC's authority to quickly approve projects and permitting in electric-transmission corridors deemed in the national interest. While primary jurisdiction should continue to rest with state and local authorities, FERC will be able to resolve disputes and mitigate unreasonable delays. Congress should also direct the Federal Highway Administration (FHA) and other relevant agencies to include high-voltage AC/DC transmission rights-of-way in their transportation permits and streamline environmental reviews of transmission projects. Finally, Congress should require states to consider public benefits of transmission lines in their planning processes and provide financial support to states hosting interstate lines.

Regulatory Cost Allocation: A macro grid policy should use both regulated and market-based "merchant" transmission business models. Since transmission remains both a natural monopoly and public good, regulated transmission is needed to build an efficient, reliable macro grid at scale. At the same time, encouraging merchant transmission will help offset regulatory costs through voluntary capacity reservations by market participants. FERC's planning and cost allocation rulemaking should replace the "participant funding" approach used in many Regional Transmission Organizations (RTOs), whereby the transmission needed to serve large renewable resource areas gets assigned to individual generators seeking to interconnect. This approach is flawed because, when a lot of transmission is needed, the cost of the network upgrades can be prohibitively expensive for the individual generators at the front of the interconnection queue. This "participant funding" approach should be replaced by one that allows for proactive transmission construction that is financed in part by load beneficiaries around the system rather than individual generators alone.

Federal Incentives: To ease barriers to transmission development and spread the costs of infrastructure in the national interest, the federal government should 1) contribute to the upfront financing of regionally beneficial lines, and 2) provide financial incentives to encourage the development and deployment of a macro grid. These incentives could include investment tax credits for developers of new high-voltage inter-regional lines, loans akin to those

administered by the Transportation Infrastructure Finance and Innovation Act (TIFIA), or bonds similar to the Competitive Renewable Energy Bonds (CREBs) that helped finance renewable energy and transmission development. Other financing options include authorizing master limited partnerships, a tax vehicle widely used in oil and gas pipelines, for transmission projects, or directing FERC to implement a “wires charge” across users to fund transmission.

AC/DC Interoperability: Alternating current (AC) lines allow local communities and networks to enjoy reliable energy, while direct current (DC) lines enable greater efficiency over long distances. Macro-grid policy should work to advance both AC and DC lines, using each and/or both where appropriate. DC lines are particularly important at the “seams” between interconnections and can enable substantial GHG reductions and customer savings.

Supporting Local Reliability: Hospitals, research facilities, military, law enforcement, and other social services require local power that is not subject to grid vulnerabilities and is more reliable than any current distribution system can provide. While facilitating wide-area power exchange, a comprehensive macro-grid policy should also support backup generation and expand options for distributed resources and micro-grids so that fully reliable power is available wherever and whenever it is needed.