Incorporating GETs and HPCs into Transmission Planning Under FERC Order 1920

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The Federal Energy Regulatory Commission's Order 1920 adopts specific requirements for scenario-based, long-term transmission planning.

Order 1920[1] requires transmission providers to (1) develop at least three plausible and diverse scenarios that identify both long-term transmission needs and potential solutions, (2) quantify the benefits of the potential solutions, and (3) establish an evaluation process for selecting among the potential solutions. The evaluation processes must aim to ensure the selection of more efficient or cost-effective facilities, with benefits weighed against costs.

Order 1920 lists *Seven Benefits* that transmission providers must consider when evaluating and selecting transmission facilities:

- ***Benefit 1***: Avoided or deferred reliability transmission facilities and aging infrastructure replacement
- ***Benefit 2***: Reduced loss of load probability or reduced capital costs to meet planning reserve margin
- ***Benefit 3***: Production cost savings
- ***Benefit 4***: Reduced transmission energy losses
- ***Benefit 5***: Reduced congestion due to transmission outages
- ***Benefit 6***: Mitigation of extreme weather events and unexpected system conditions
- ***Benefit 7***: Capacity cost benefits from reduced peak energy losses

Alternative Transmission Technologies (ATTs)

Order 1920 also asks transmission providers to consider ATTs as part of their potential solutions. ATTs discussed in the Order include certain Grid-Enhancing Technologies (GETs) – namely, Dynamic Line Ratings (DLR), Advanced Power Flow Control (APFC), and Transmission Switching – as well as High-Performance Conductors (HPCs).

A review of 25 Case Studies show ATTs can provide all *Seven Benefits*. ATTs have three distinct key characteristics when compared to traditional wires-based solutions. These are (1) lower cost and faster installation, (2) complementarity to existing equipment, and (3) portability and reversibility (for GETs only). As we explore in our report, integrating ATTs into transmission planning and selection is not just an opportunity but a necessity for achieving cost-effective, timely, and sustainable grid development over the next several decades. However, there are several barriers preventing them from being deployed widely.

Role of Relevant State Entities

The current transmission planning framework – built on static future snapshots – may not be adequate to evaluate the *Seven Benefits* or overcome ATT deployment barriers. Order 1920 provides an opportunity to transition into a more holistic approach that incorporates multiple timeframes, evolving

1 The report generally refers to Orders 1920 and 1920-A collectively as "Order 1920."

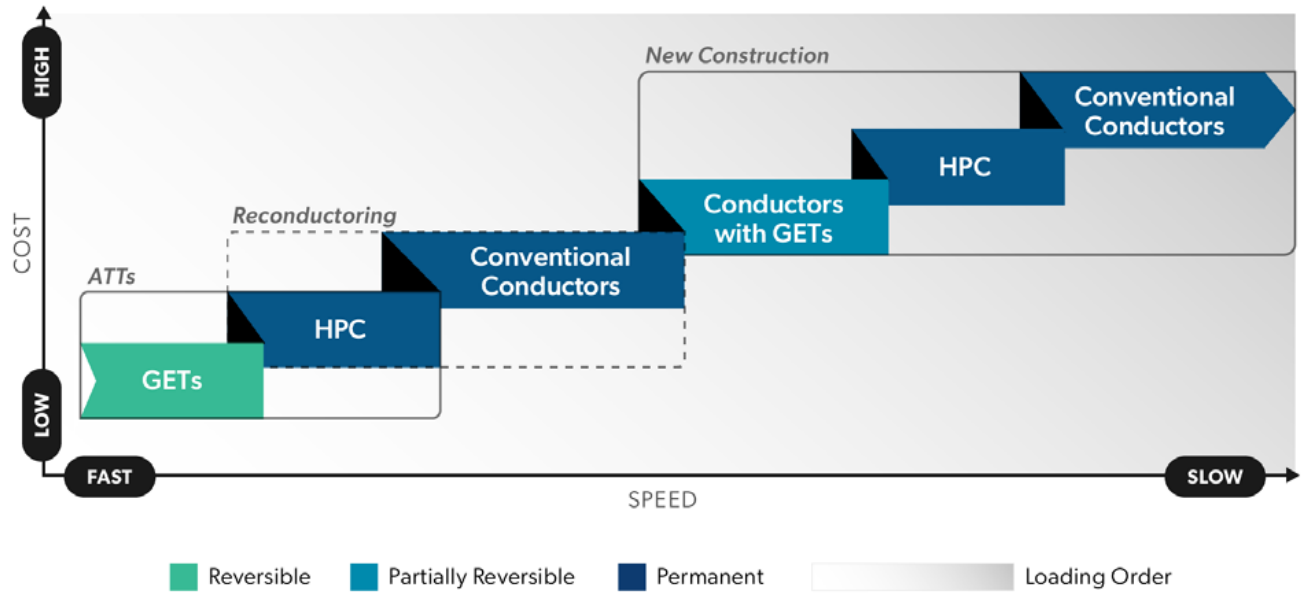
system conditions, and improved evaluation methods and selection criteria.

Relevant State Entities (RSEs) – any state entity responsible for electric utility regulation or siting electricity transmission, or another entity designated by state law – will play an essential role in helping transmission providers navigate complexities, realize the full potential of ATTs, and accelerate the industry transition.

For example, beyond the three scenarios mandated by Order 1920, RSEs could request transmission providers consider a reasonable number of additional scenarios in their planning that include ATTs. Since Order 1920 also requires transmission providers to consult with RSEs when developing evaluation processes and selection criteria, RSEs could also advocate for the inclusion or omission of certain selection criteria – such as removing qualitative criteria that would bias the selection process against ATTs – without considering benefit-to-cost ratios. These actions would allow RSEs could help establish a preferred loading order (as illustrated in the figure below) for transmission selection that aligns with state priorities.

Ultimately, the success of Orders 1920 will depend on the willingness of transmission providers to embrace these innovative solutions, modernize their frameworks, and deliver a grid development plan that is reliable, efficient, and ready for the future. Active, collaborative engagement from RSEs – combined with their guidance to ensure accountability for transmission providers – will be essential for achieving success.

ILLUSTRATIVE LOADING ORDER



This is a summary of "Incorporating GETs and HPCs into Transmission Planning Under FERC Order 1920," The Brattle Group, April 2025. This report was prepared for the American Council on Renewable Energy (ACORE). All perspectives and opinions belong to the authors and do not necessarily reflect those of The Brattle Group, its clients, or other consultants.

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