# New FERC Rules Governing Transmission Planning and Backstop Permitting ( issued May 13, 2024)

Paul L. Joskow

MIT

May 17, 2024

# Major FERC Orders on Transmission Issued May 13, 2024

- Order 1920: “Building the Future through Electric Regional Planning and Cost Allocation”
  - ~1800 pages
  - New Transmission Planning and Cost Allocation requirements also enhancing Order 2023 (Interconnection Rules responding to huge interconnection queues)
  - Not to be confused with Order 1000 (2011): “Transmission Planning and Cost Allocation” even though they have similar titles
  - Compliance filings in one year
  - Once filings accepted updated planning and cost allocation proceeds, though initial compliance filings are often rejected
  - 23 states plus DC have “net zero by 2050” laws or goals (and 27 do not)
  - Vote was 2-1 vote; Dissent argues that it is an effort to transfer costs associated with state decarbonization policies to states without such policies. Suggests it is unconstitutional under Supreme Court “major questions” doctrine

# Major FERC Orders on Transmission Issued May 13, 2024

- Order 1977: “Applications for Permits to Site Interstate Transmission Facilities”
  - Only 258 pages
  - Backstop FERC permitting for DOE Designated National Interest Transmission Corridors
  - FERC backstop permitting authority first authorized by Energy Policy Act of 2005 creating FPA Section 216
  - Never used after Court of Appeals (4th Circuit and then 9th Circuit) rejected FERC’s interpretation of the statute and DOE designation of (2) National Interest Transmission Corridors
  - Infrastructure Investment and Jobs Act (IIJA) amended FPA Section 216 in an effort to deal with issues raised by the courts previously
  - DOE Issued a preliminary list of National Interest Transmission Corridors on May 8, 2024 with final designation TBA

# Current Challenges for Developing Major New Transmission Lines

- ISO planning and cost allocation policies for major new intra- and inter-transmission lines are deficient
  - Too short-term and failure to do scenario planning reflecting uncertainty
  - Benefits considered are too narrow and this affects both planning and cost allocation
  - Interregional planning is de facto non-existent
  - "Local" transmission planning is not transparent and virtually unregulated
  - Slicing transmission projects between reliability, economic efficiency, and public policy projects undermines cost-effective planning
  - Competitive procurement requirements in Order 1000 have not been fully implemented
  - Merchant projects are not integrated into the planning process in any meaningful way
- Interconnection planning, development, and pricing still needs work (see Armstrong et. al.)
  - Order 2023 tried to fix the huge interconnection queue problem but it failed adequately to address all of the problems with existing policies (Armstrong et. al)
  - Failure to integrate interconnection policies with broader transmission planning process
  - Rigid policy for allocating costs of interconnection creates distortions

# Current Challenges for Developing Major New Transmission Lines

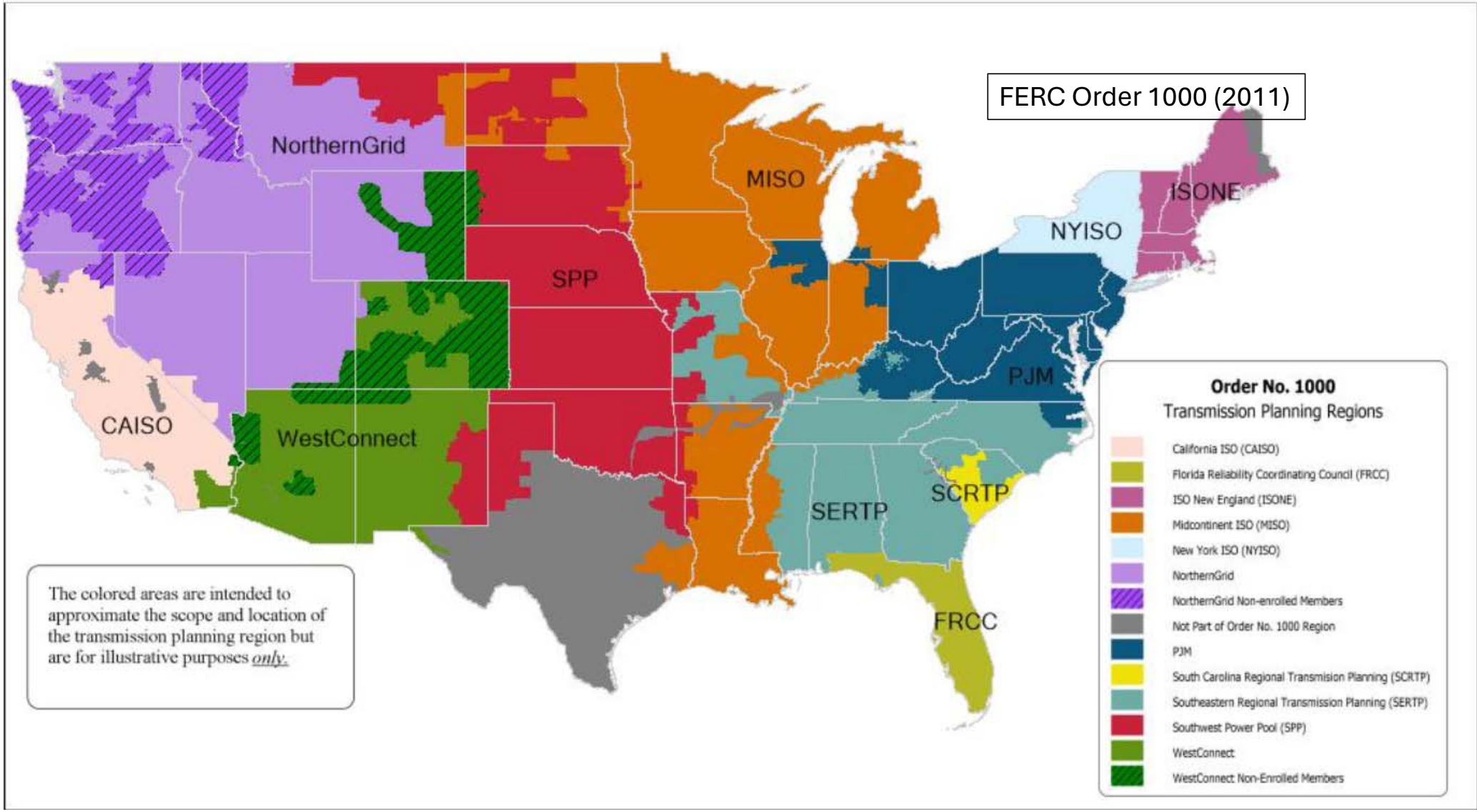
- Federal, State and Local Siting and Permitting
  - Federal environmental reviews take too long: Consolidating these reviews with a 2-year goal is a step forward
    - DOE has now consolidated these federal reviews with two-year goal (April 25, 2024)
  - State and local permitting is also important and can be very time consuming
  - FERC backstop permitting (2005) has never been used.
  - Backstop permitting authority and responsibilities of DOE and FERC clarified in the Infrastructure Investment and Jobs Act (IIJA)
- Financing and integrating of merchant lines is problematic
  - Merchant lines are not integrated into ISO planning process
  - Merchant lines are treated like generators which must line up in the interconnection queue
  - Merchant lines need “anchor tenants” to get financing
    - DOE Transmission Facilitation Program is a big step forward but there is not enough money
  - The model for developing merchant lines is similar to interstate natural gas pipeline model
- FERC regulation of transmission investments, costs and performance is non-existent

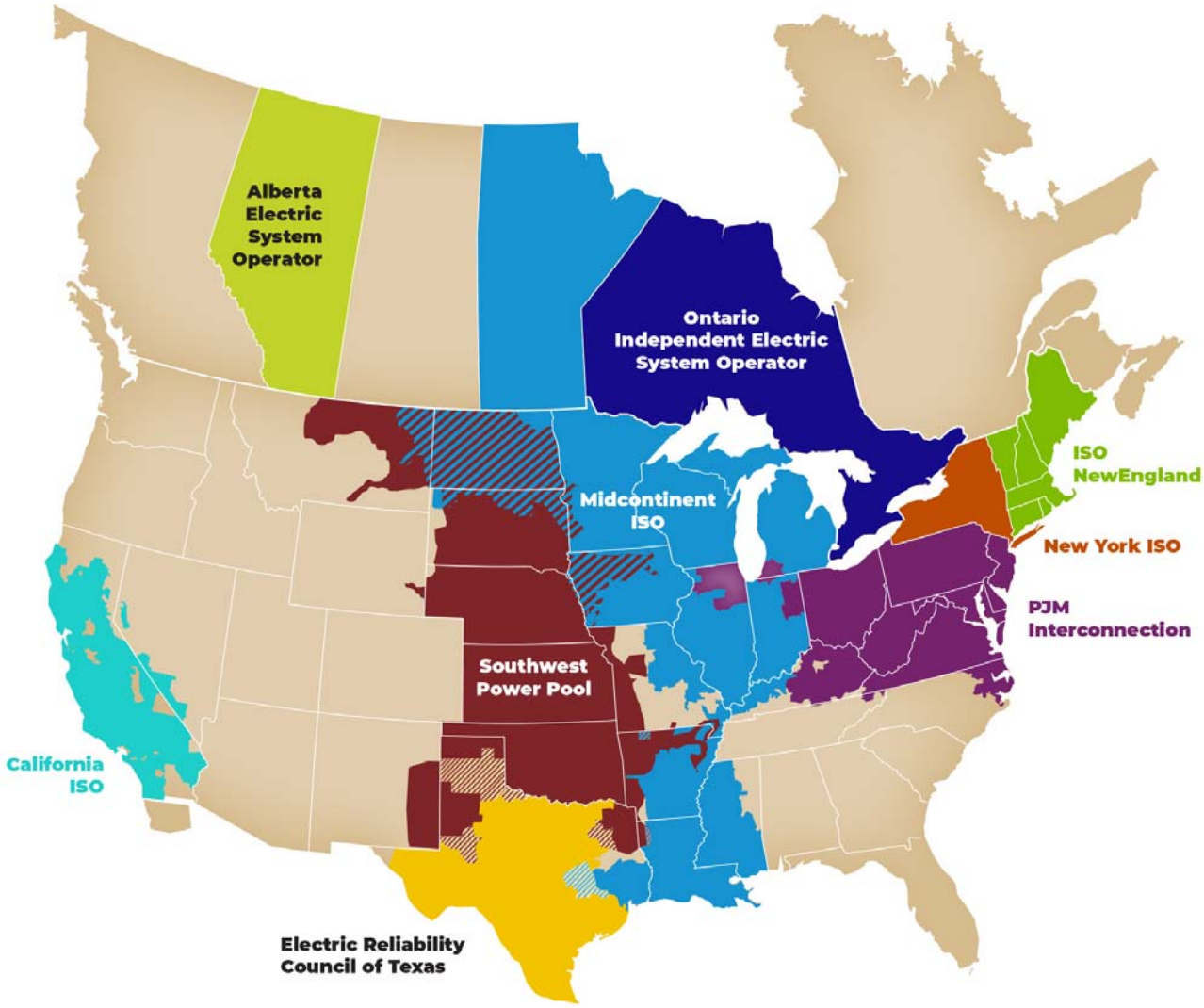
# Examples

# The Ideology Guiding ISOs Circa 2020

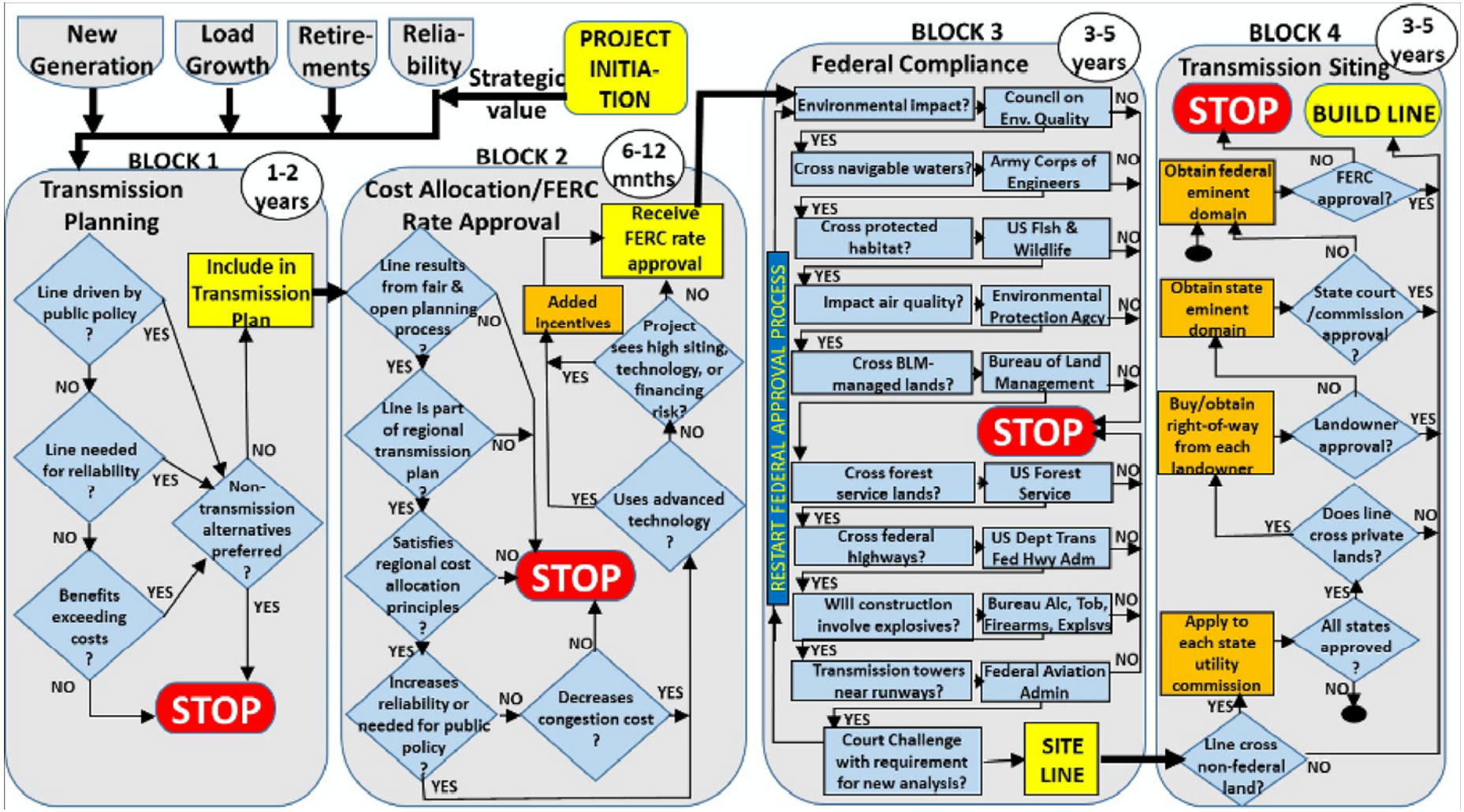
- Long term planning is bad
  - IRP is a dirty phrase
- Respond to what comes at you and base short-term (1-3 years) planning on it ("reactive" is the plan)
- Focus on your own footprint
- Maintaining short-term reliability is goal #1
- Creating and managing short-term energy and AS markets while managing congestion using LMP is goal #2
- Interconnecting new generators when they show up is goal #3
- "The market" will bring forth needed transmission investment as it responds to LMP and the opportunity to be allocated congestion revenue rights
- Long-term contracts for new generation is not the ISO's business
- Climate change policy and rapid diffusion of wind, solar, storage was not on the agenda

FERC Order 1000 (2011)






IRC
ISO/RTO COUNCIL



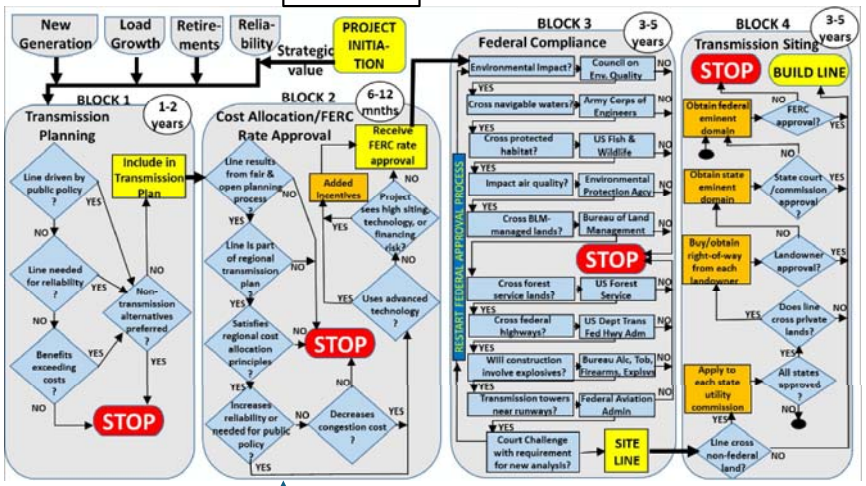

# ISO Transmission Planning and Permitting

Major Project Construction: 2-3 years

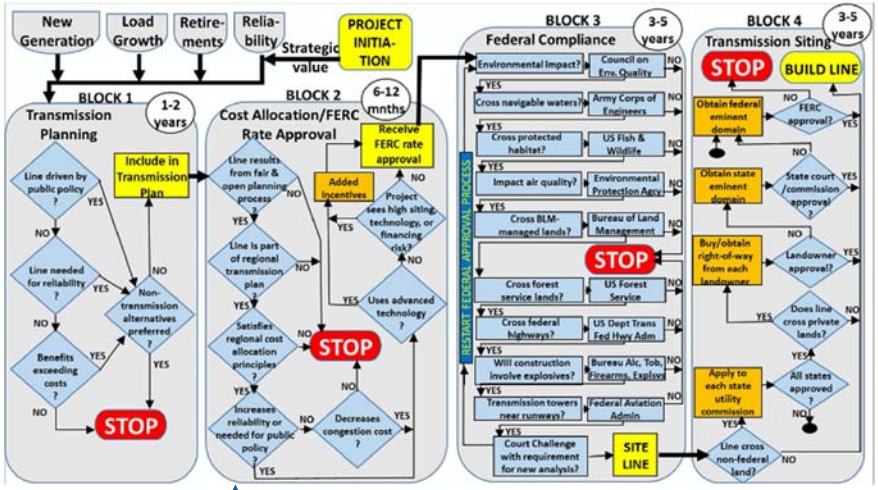
Breakthrough Energy

# Inter-ISO Projects

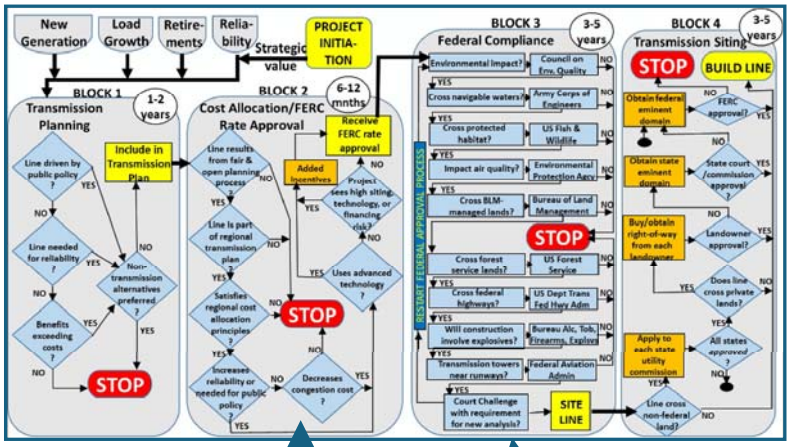
ISO #1

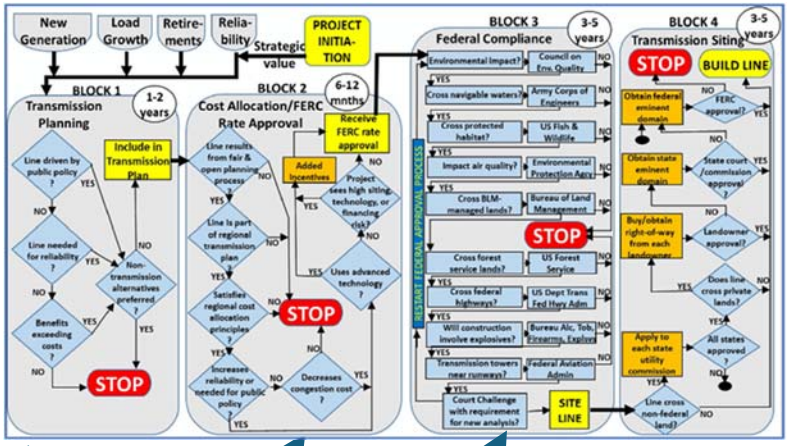



ISO #2




Interregional Planning Coordination Committee




Cross ISO/Utility Boundaries

FERC Open Season
Interconnection queue

Permits

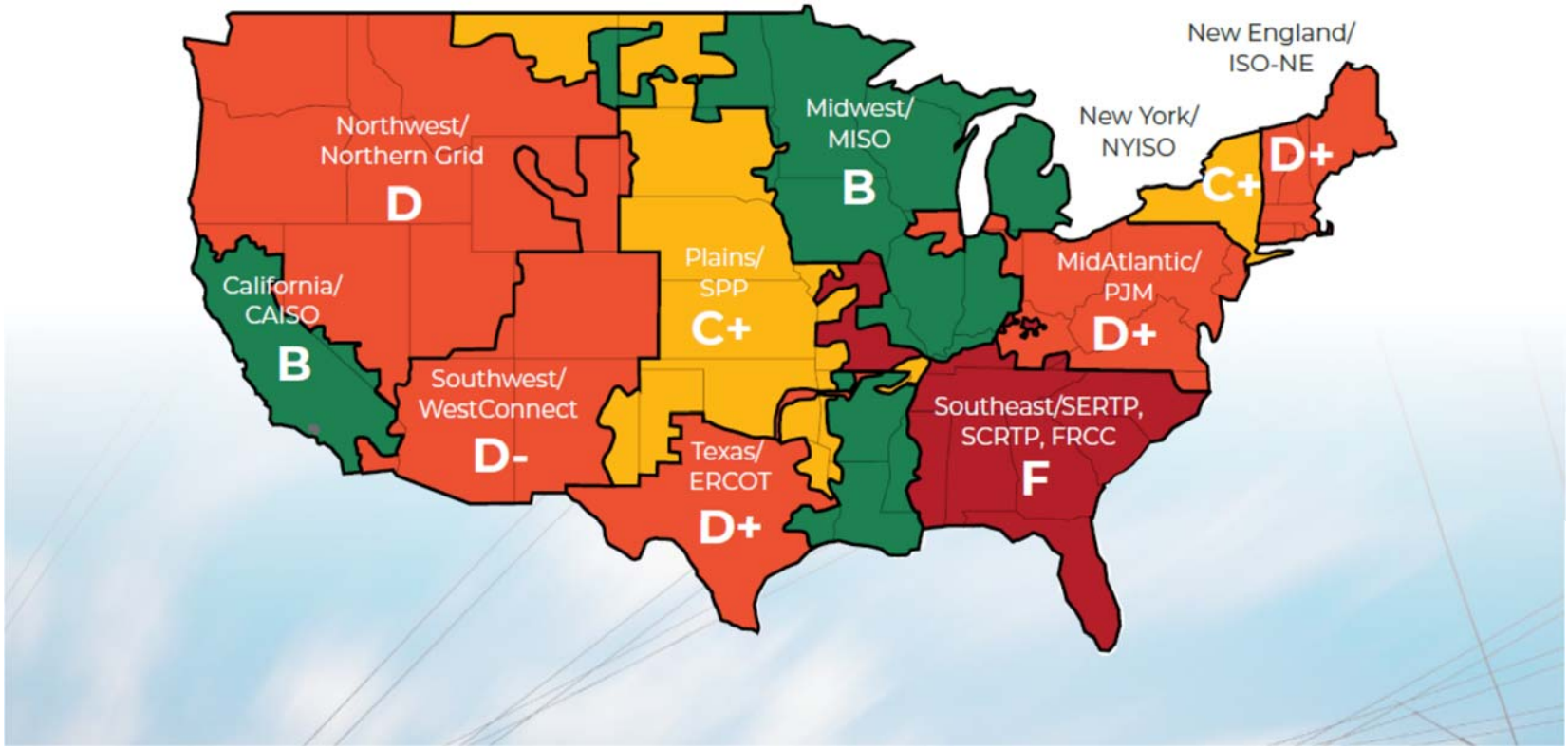
FERC Open Season
Interconnection queue

Permits

MERCHANT ROUTE

Design Project
Secure anchor tenants through open season
Negotiate terms and conditions contracts
Interconnection agreements and upgrades (HVDC vs. AC)
Permitting and construction

FIGURE 1 Overall regional transmission planning grades

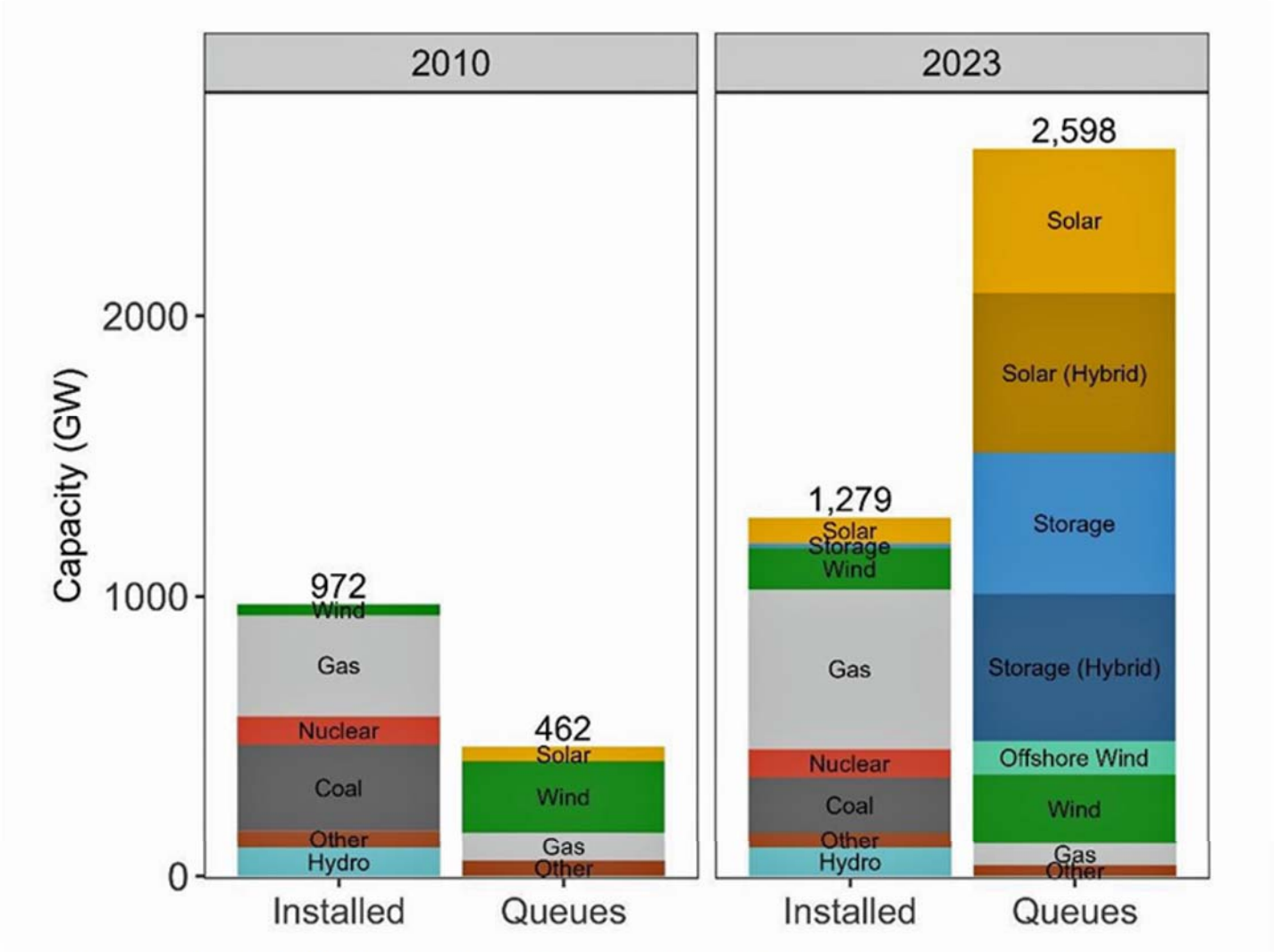



Americans for a Clean Energy Grid, 2023

TABLE 2. PLANNING AUTHORITIES CURRENT USE OF EFFICIENT PRACTICES

| | Proactive Generation & Load | Multi-Value | Scenario-Based | Portfolio-Based[30] | Joint Interregional Planning |
|---|---|---|---|---|---|
| ISO-NE[31] | ✗ | ✗ | ✗ | ✓ | ✗ |
| NYISO[32,33] | ✗ | ✗ | ✗ | ✗ | ✗ |
| – PPTPP only | ✓ | ✓ | ✓ | ✓ | ✗ |
| PJM[34,35] | ✗ | ✗ | ✗ | ✗ | ✗ |
| Florida | ✗ | ✗ | ✗ | ✗ | ✗ |
| Southeastern Regional | ✗ | ✗ | ✗ | ✗ | ✗ |
| South Carolina Regional | ✗ | ✗ | ✗ | ✗ | ✗ |
| MISO (excl. MVP, RIIA)[36] | ✗ | ✗ | ✗ | ✗ | ✗ |
| SPP (ITP)[37,38] | ✗ | ✓ | ✗ | ✓ | ✗ |
| CAISO[39,40] | ✓ | ✗ | ✓ | ✗ | ✓ |
| – TEAM only | ✓ | ✓ | ✓ | ✓ | ✓ |
| WestConnect | ✗ | ✗ | ✗ | ✗ | ✗ |
| NorthernGrid[41] | ✗ | ✗ | ✗ | ✗ | ✗ |

The Brattle Group and Grid Strategies, October 2021




(//www.rtoinsider.com/76494-doe-issues-transmission-interconnection-roadmap/)

The U.S. Department of Energy on April 17 issued its first-ever roadmap for speeding the interconnection of new clean energy generation to the nation's grid. | *DOE*

# Key Statistics

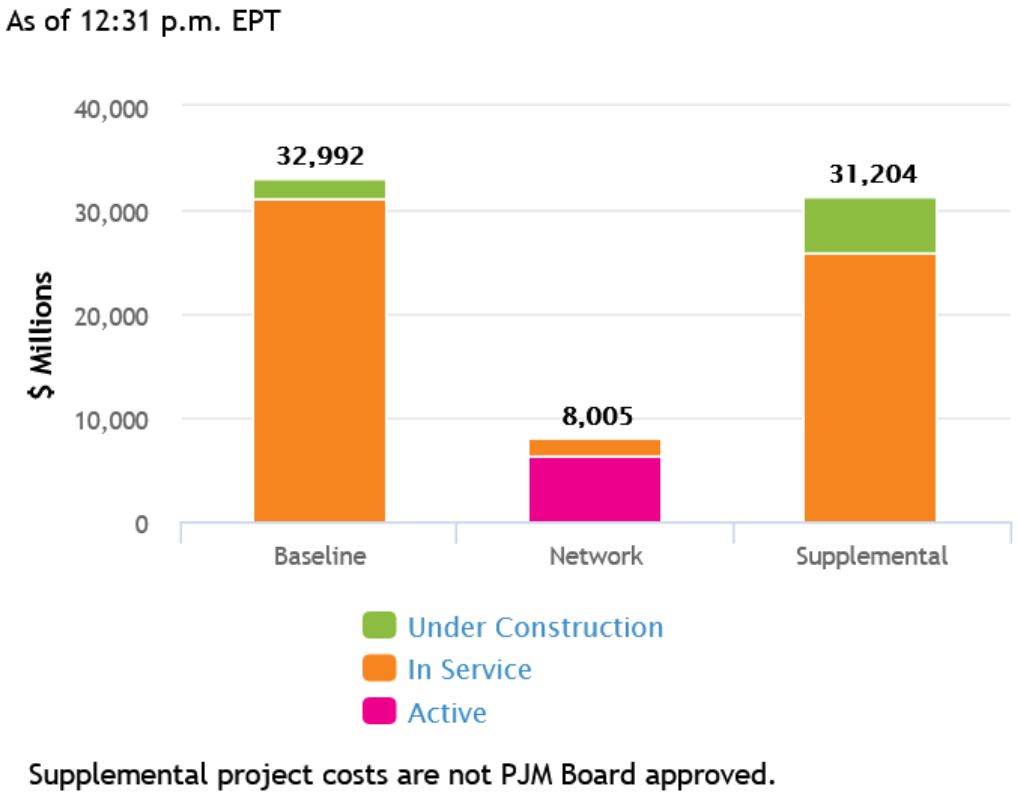
## Long Lines Ahead

The amount of generation and storage capacity in interconnection queues increased to nearly 2,600 gigawatts last year, a 27% increase from 2022, according to a report released by the Lawrence Berkeley National Laboratory. Over 95% of the capacity is for zero-carbon resources like solar, wind, and battery storage.

Total (cumulative) active capacity vs new (annual) capacity entering the queues (GW)


Sources: Berkeley Lab, EnerKnol

# “Local” Transmission Projects

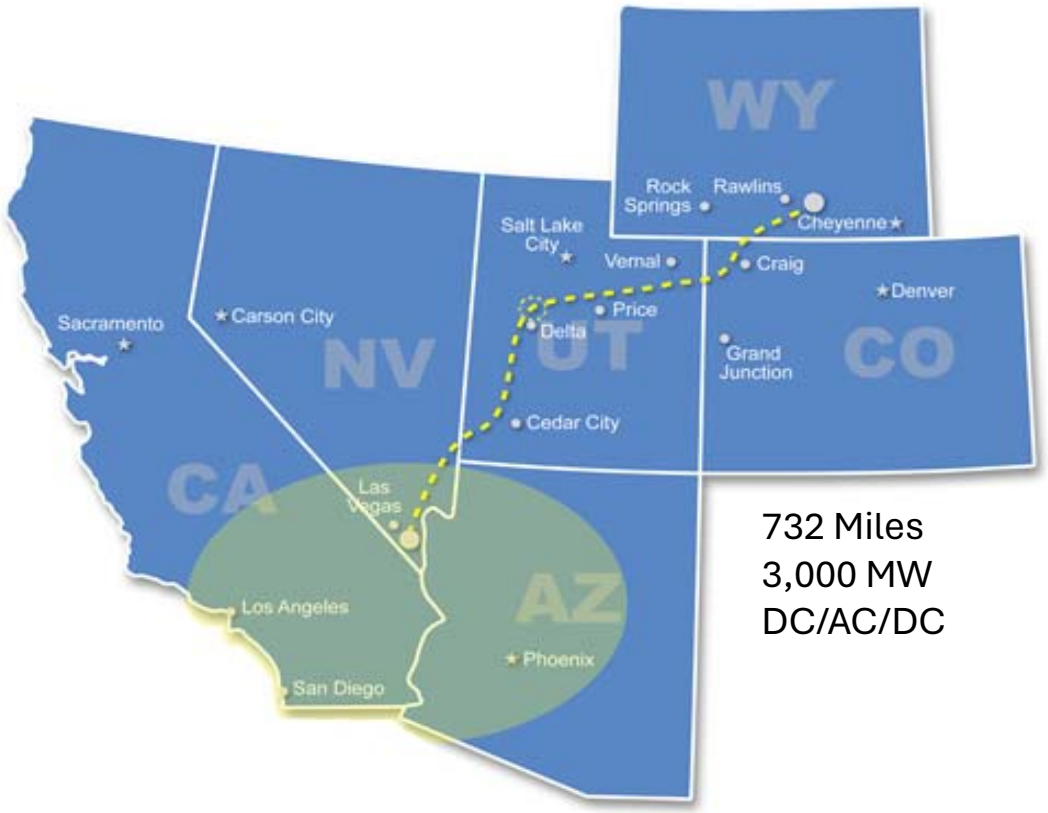



PJM https://www.pjm.com/planning,

# “Interregional” Transmission Lines

- Most ISOs have some type of inter-ISO coordination arrangement but they are not very active
- Few if any inter-ISO transmission lines have been forthcoming through coordinated ISO planning
- Most interregional lines under construction are merchant lines which the ISOs generally ignore in their planning
- Large vertically integrated utilities are also building what are effectively interregional lines

# TransWest Express (Merchant Project)



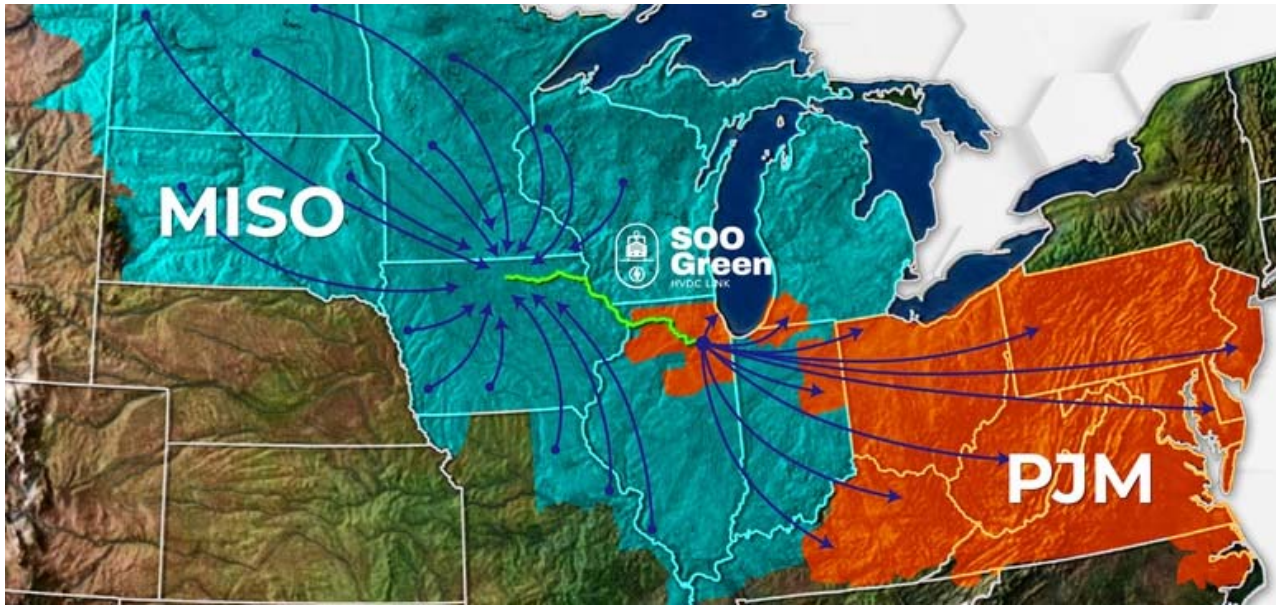

732 Miles
3,000 MW
DC/AC/DC

https://www.transwestexpress.net/index.shtml

| History | | |
|---|---|---|
| Study Initiated (APS) | 2005 | |
| National Grid Joins | | 2006 |
| TransWest Express LLC (Anschutz Group) | 2008 | |
| Preliminary BLM RoW and WECC rating | 2010 | |
| Public Outreach | 2012 | |
| BLM publishes EIS | 2015 | |
| Agreements with tribes | 2016 | |
| WAPA issues EIS | 2017 | |
| Forest Service issues EIS | 2017 | |
| BLM grants RoW | 2017 | |
| First Country Permit | 2018 | |
| All Federal, state and county permits complete | 2020 | |
| FERC Open Season | | 2021-22 |
| Membership in CAISO Approved by FERC | | 2023 |
| Estimated Construction | 2023-27 | |
| Est Completion | 2027/28? | |

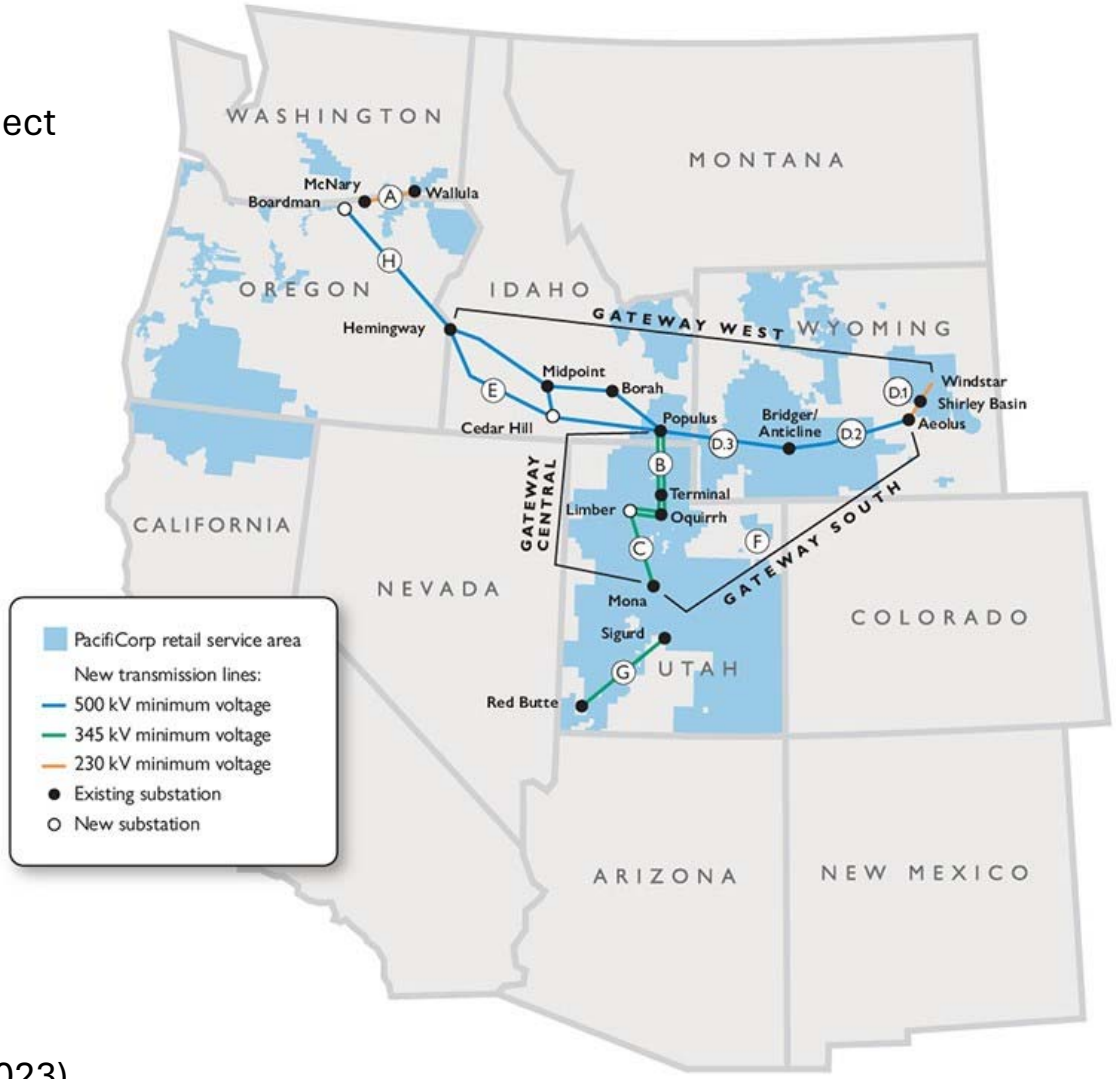
Merchant Project (SOO Green)
2,100 MW HVDC
350 miles
Underground
Connects MISO and PJM

Announced: 2020
IUB Approval: 9/2023
Iowa Town Franchises: ?
Illinois Approvals: ?
PJM Agreement: Q3-2025?
Target Completion: end 2029



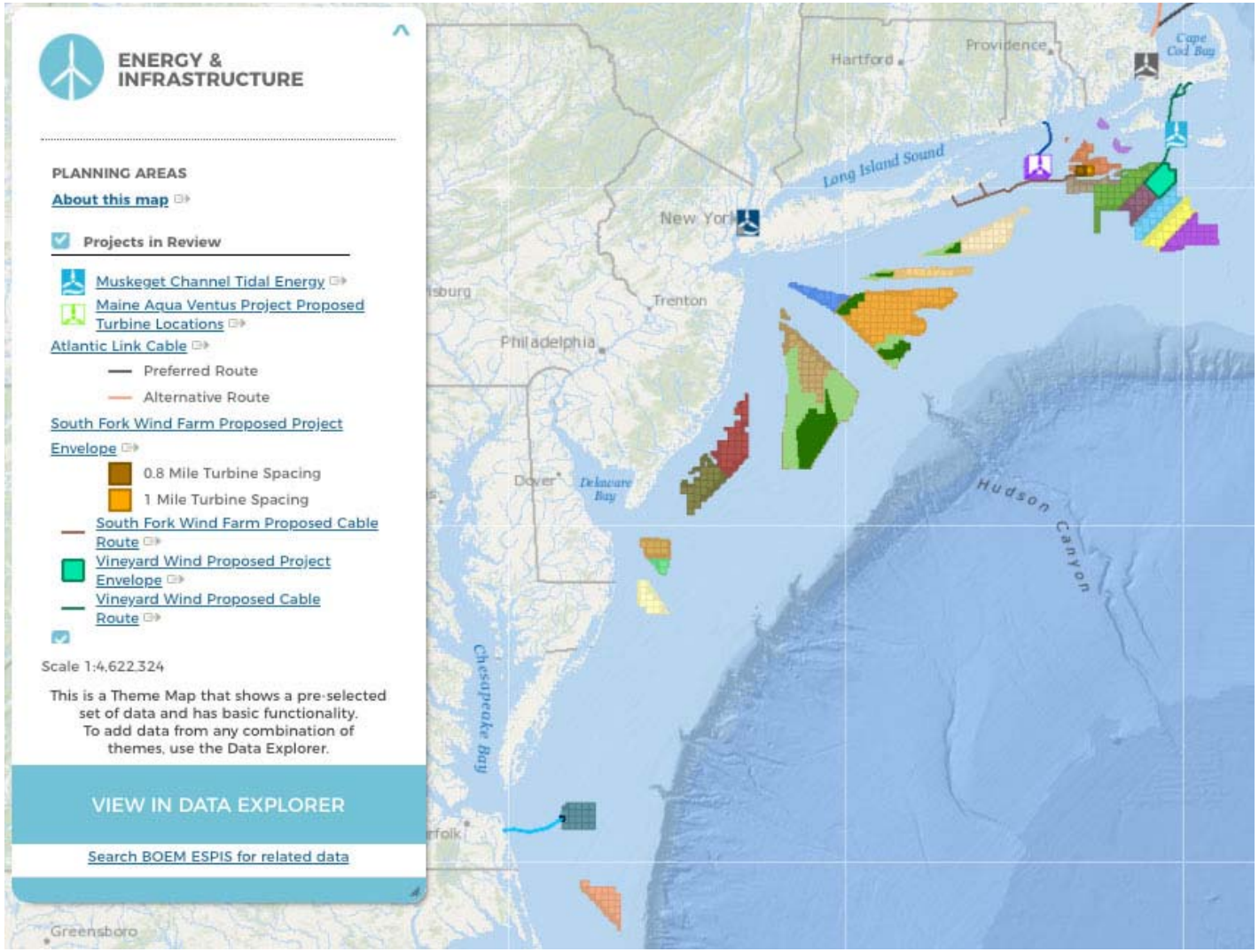

https://www.utilitydive.com/news/pjm-market-monitor-ferc-soo-green-capacity-complaint-exelon-nrdc/608967/

Regulated Multi-State Project – VI IOU, No ISO



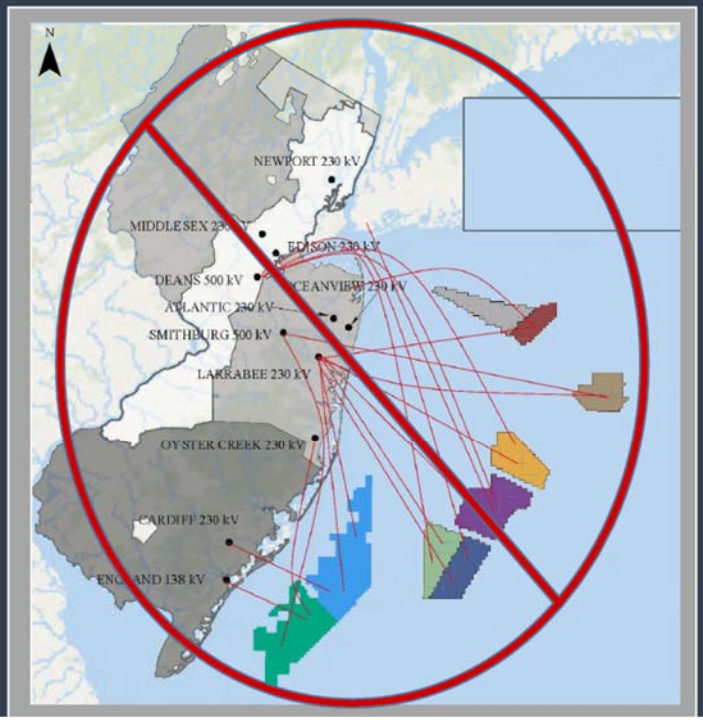

Pacificorp (September 2023)

This map is for general reference only and reflects current plans.
It may not reflect the final routes, construction sequence or exact line configuration.


ENERGY & INFRASTRUCTURE
PLANNING AREAS
About this map
Projects in Review
Muskeget Channel Tidal Energy
Maine Aqua Ventus Project Proposed Turbine Locations
Atlantic Link Cable
Preferred Route
Alternative Route
South Fork Wind Farm Proposed Project Envelope
0.8 Mile Turbine Spacing
1 Mile Turbine Spacing
South Fork Wind Farm Proposed Cable Route
Vineyard Wind Proposed Project Envelope
Vineyard Wind Proposed Cable Route
Scale 1:4,622,324
This is a Theme Map that shows a pre-selected set of data and has basic functionality. To add data from any combination of themes, use the Data Explorer.
VIEW IN DATA EXPLORER
Search BOEM ESPIS for related data
Hartford
Providence
Cape Cod Bay
Long Island Sound
New York
Trenton
Philadelphia
Dover
Delaware Bay
Hudson Canyon
Chesapeake Bay
Greensboro

# Some of New Jersey's SAA 2.0 Goals

- Minimize environmental, community, permitting and fishing impacts
  - Minimize cables crossing shore
  - Minimize points of interconnection
- Encourage competition
- Lower cost and risk of OSW generation and transmission
- Maximize transmission developer expertise
- Lower OREC prices



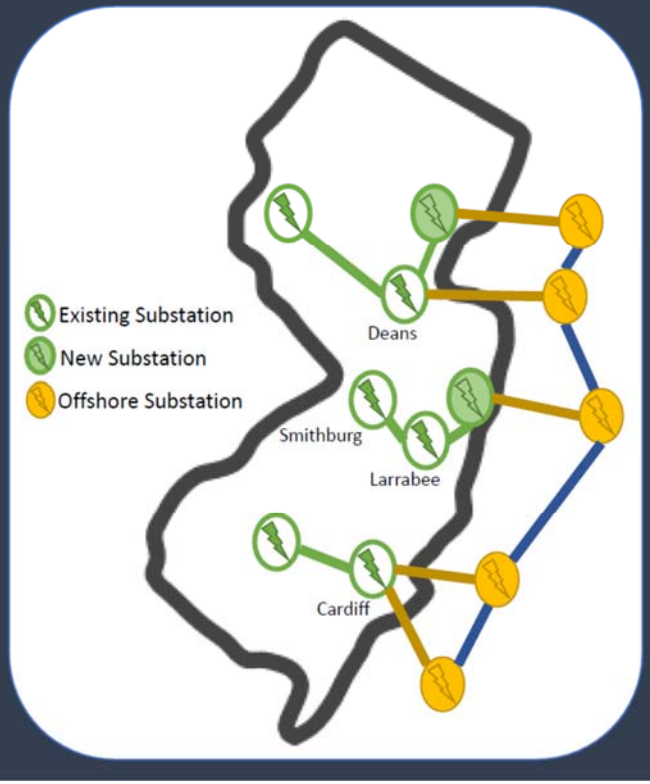
# SAA 2.0 General Scope

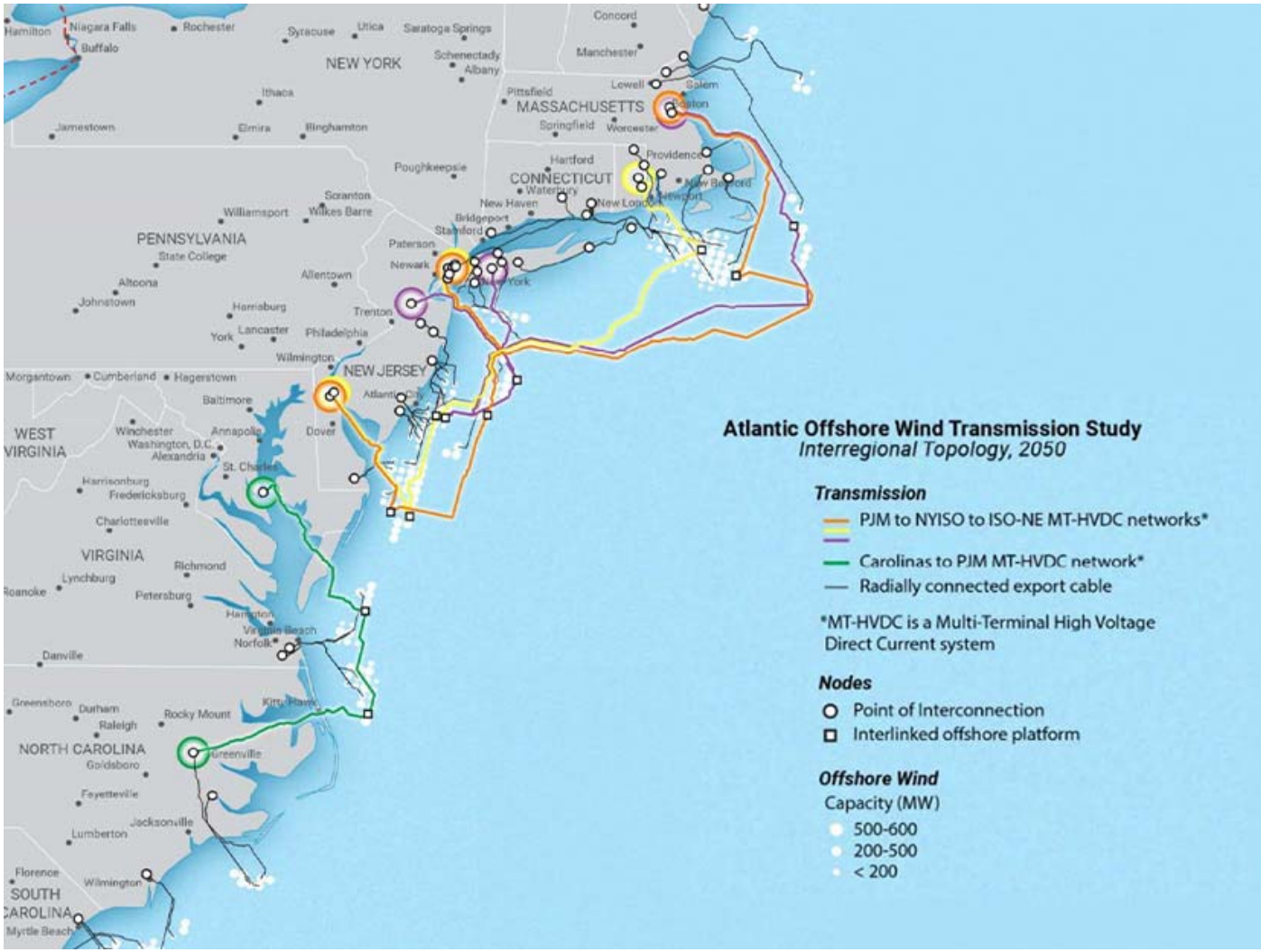
**Option 1:** New or existing onshore upgrades

**Option 2:** New offshore substations over shore crossing to onshore substations

**Option 3:** "Network" or "backbone", interconnecting multiple offshore facilities

Detailed scoping discussions will occur as competitive window preparations continue.




Atlantic Offshore Wind Transmission Study
Interregional Topology, 2050
Transmission
PJM to NYISO to ISO-NE MT-HVDC networks*
Carolinas to PJM MT-HVDC network*
Radially connected export cable
*MT-HVDC is a Multi-Terminal High Voltage Direct Current system
Nodes
Point of Interconnection
Interlinked offshore platform
Offshore Wind
Capacity (MW)
500-600
200-500
< 200
NEW YORK
MASSACHUSETTS
CONNECTICUT
PENNSYLVANIA
NEW JERSEY
WEST VIRGINIA
VIRGINIA
NORTH CAROLINA
SOUTH CAROLINA
Buffalo
Rochester
Syracuse
Albany
Boston
Hartford
Providence
Philadelphia
Baltimore
Washington, D.C.
Richmond
Norfolk
Raleigh
Wilmington

# What Does Order 1920 Do?

- Requires transmission planning regions to develop long-term plans looking forward at least 20 years
  - most ISOs have already begun to do long-term planning for 10+ years
- Requires planning process to develop multiple scenarios reflecting uncertainty
- Expands range of benefits to be considered
- Establishes a negotiation process with the affected states to agree on cost allocation principles
- Integrates reliability, economic efficiency, and public policy projects together into the planning process effectively ending the separate consideration of public policy projects and economic efficiency projects (except as it may affect cost allocation)
- Integrates transmission planning with interconnection policies and recognizes that requiring the “first in line” to pay all costs fails to recognize “externalities” and long-term cost incidence
- Does not repeal Order 1000 termination of right of first refusal (ROFR) and seems to support competition for new transmission facilities (was an incumbent TO priority)
- Recognizes opportunities to update existing lines (“right sizing”) to increase effective capacity and reliability and retains ROFR for such projects

# What Does Order 1920 Not Do?

- It doesn't do much to integrate merchant projects in advanced development into long run transmission plans
- It doesn't do much to expand interregional planning and transmission development
  - Development of a coordinated transmission plan for Northeast off-shore wind continues to be a serious problem
- The cost allocation issue will continue to be contentious in multi-state ISOs
- It does not provide enough support for competitive procurement programs for new transmission
- It does not fix imperfections in FERC oversight of costs and performance

# What Does Order 1977 Do?

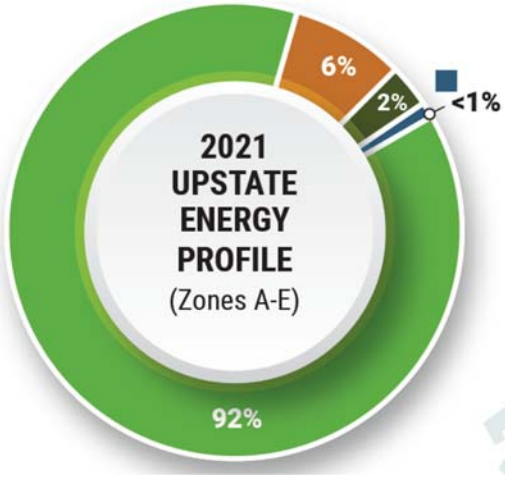
- Primarily clarifies how backstop siting authority clarified by IIJA will be implemented
- Establishes one-year period to get state approvals before backstop siting is triggered
- Clarifies application of eminent domain authority and landowners' rights
- DOE identification of National Interest Transmission Corridors is well along
- Developers still need to come forward to propose projects located within these National Interest Transmission Cooridors and fail to get them approved by states before this matters

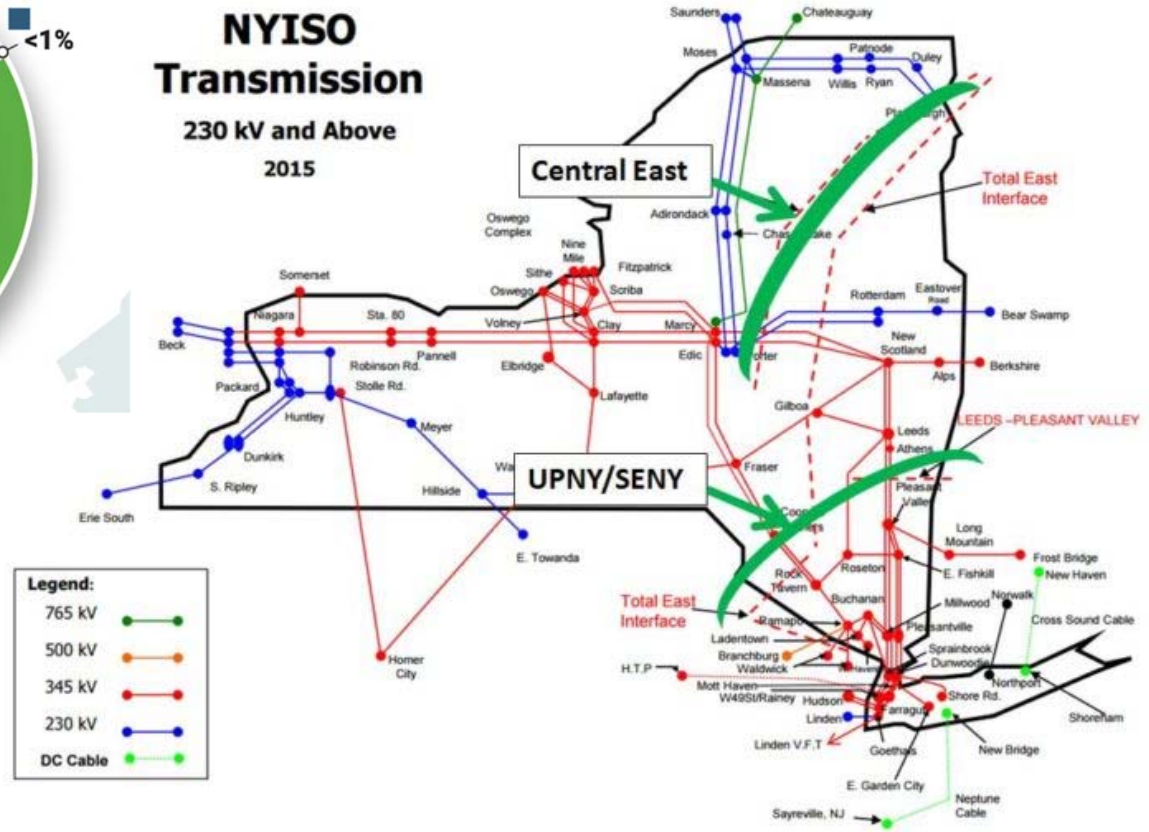
# Preliminary Identification of (10) National Interest Transmission Corridors (May 2024)


https://www.energy.gov/gdo/national-interest-electric-transmission-corridor-designation-process

# Are Any ISOs/Multi-state VIs Close to Doing in Right Already?

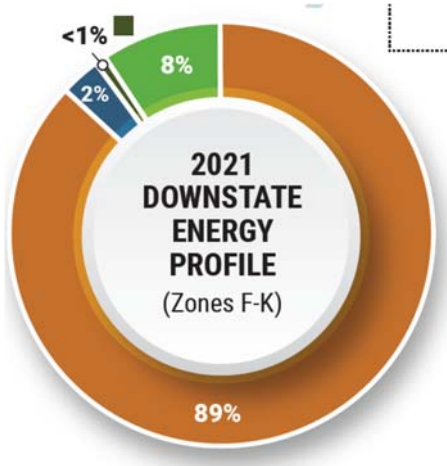
- New York ISO
- California ISO
- Pacificorp (large VI utility)
  - Integrated Resource Plan
  - Supporting transmission development covering 5 states



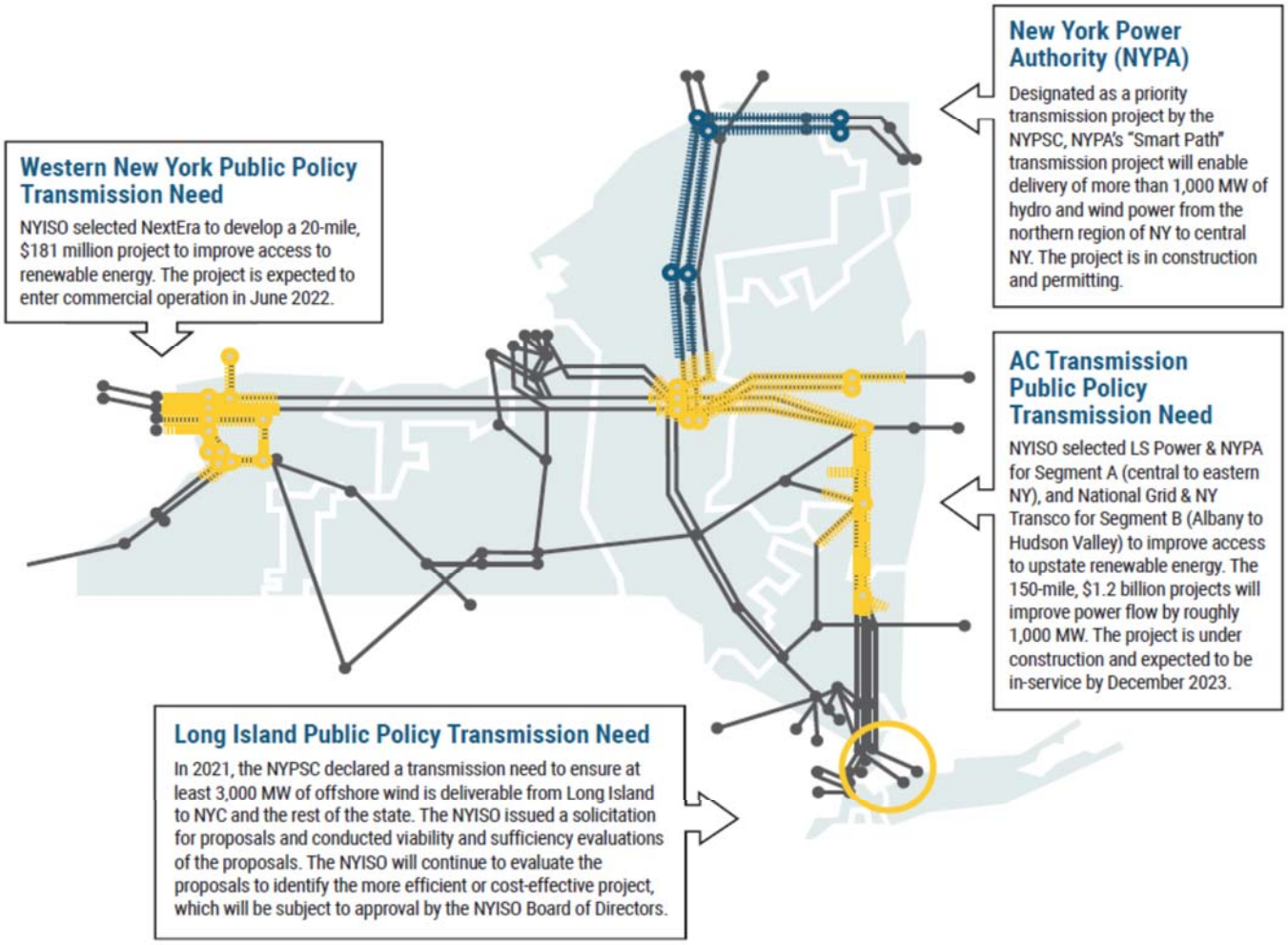

2021 energy production from:

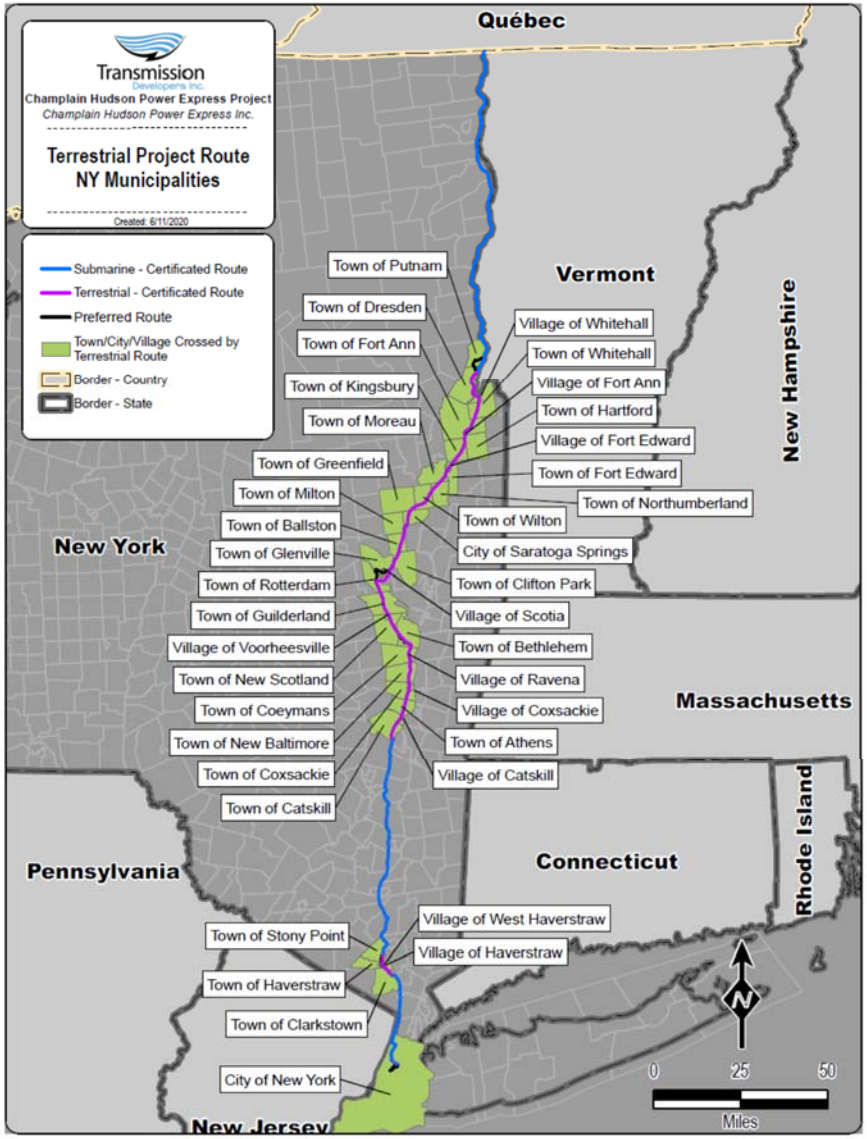
- Zero-Emissions
- Hydro Pumped Storage
- Other Renewables
- Fossil Fuels




New York ISO 2015

Figure 19: **New Transmission Projects in New York State**






1,250 MW HVDC
60% underwater/40% underground

Two five-inch-diameter cables will be placed underwater or 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 that will be built in Astoria, Queens.

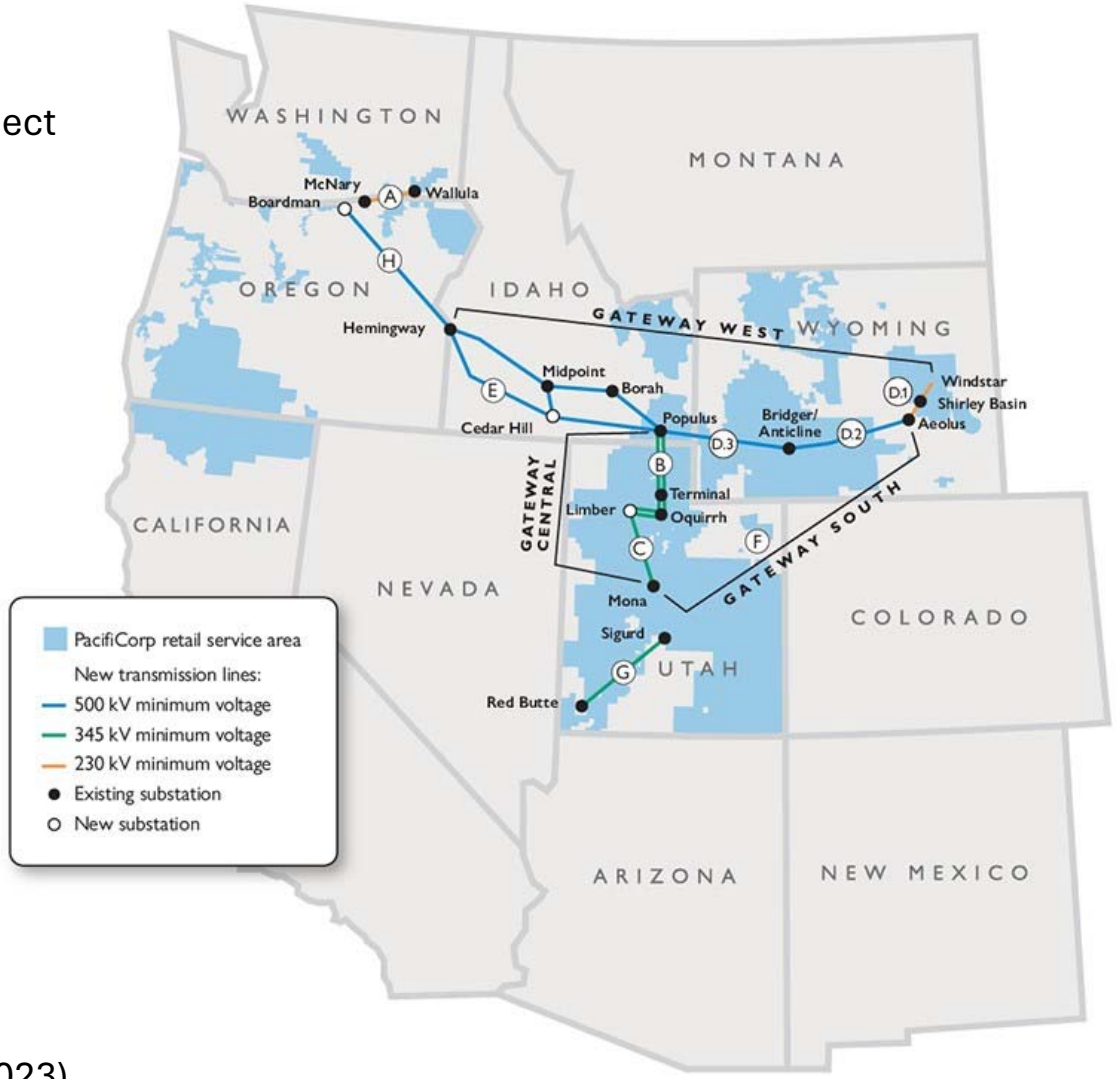
Announcement 2010
Under construction with anticipated completion 2026

$6 billion estimated cost

https://chpexpress.com/wp-content/uploads/2020/06/Terrestrial-Project-Route.pdf


4-7 GW
Offshore
Wind
North
Coast
Wind
California-Oregon
Intertie
WY/ID
Wind
5 GW
Out-of-State
Wind
Additional
Transmission
Required
1 GW
2 GW Solar
Load Center
(4.5 GW Gas
Retirement)
Pacific DC
Intertie
Transmission
Projects in
Development
Stages
(SB100 Workshop)
30 GW Solar
6 GW
West of
the River
2 GW
2 GW
9 GW
5 GW Solar
1 GW
2 GW
3-6 GW
Offshore
Wind
Central
Coast
Wind
5 GW
Out-of-State
Wind
2 GW Geothermal
NM
Wind
Load Center
(3.5 GW Gas
Retirement)
6 GW
10 GW Solar

Regulated Multi-State Project – VI IOU, No ISO




Pacificorp (September 2023)

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