De-Carbonization / DER Report for NYSRC Executive Committee Meeting 12/6/2024

Contact: Matt Koenig (koenigm@coned.com)

The December 2024 edition of the De-Carbonization / Distributed Energy Resources (DER) Report includes the following items:

- NERC Website: Interregional Transfer Capability Study Filed with FERC
- NYPA releases draft strategic plan for 3.5 GW of renewables generation
- AAA: Cities Outpace Consumers in EV Adoption
- Gothamist: New York's rules on Turbine Transportation are Blowing its Climate Goals Out of Reach
- Snapshot of the NYISO Interconnection Queue: Storage / Solar / Wind / Co-located

NERC Newsroom: Interregional Transfer Capability Study Filed with FERC

On November 19th, NERC announced the filing of the completed Interregional Transfer Capability Study (ITCS) with the Federal Energy Regulatory Commission (FERC) today, in advance of the December 2nd deadline. The study provides a calculation of current transfer capabilities, an energy margin analysis for 23 Transmission Planning Regions (TPR), with recommendations for increases to transfer capability between regions that would strengthen energy adequacy during extreme weather events. It also recommends approaches to meet and maintain transfer capability that would be prudent for reliability. The filing will be followed by a FERC public comment period. A Summary Report of the ITCS scope and findings can be found on NERC's ITCS web page.

The filing is a consolidation of three previous draft documents released during the course of the study, entitled: Overview of Study Need and Approach, Transfer Capability Analysis (Part 1),and Recommendations for Prudent Additions to Transfer Capability (Part 2) & Recommendations to Meet and Maintain Transfer Capability (Part 3).

The study, previewed in this Short ITCS video, provides foundational insights for enhancing transfer capability and strengthening reliability. While transmission upgrades alone will not fully address all risks, a diverse and flexible approach will allow TPRs to develop tailored solutions specific to their risk tolerance, economics, and policies. The study encourages that a broader set of solutions, emphasizing the consideration of local resources, energy efficiency, demand-side management, and storage solutions. It also discusses the risks associated with the broad expansion of the transmission system and a need for more granular studies as specific projects are identified. NERC was directed to conduct the ITCS by Congress in its Fiscal Responsibility Act of 2023.

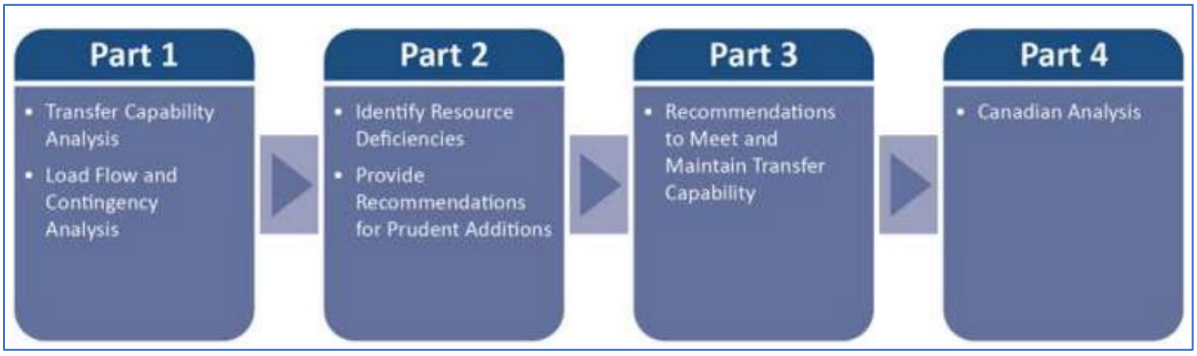
Within the ITCS Scope:

- Common modeling approach to study from the North American grid independently and transparently.
- Evaluation of the impact of extreme weather events on hourly energy adequacy using the calculated current transfer capability and 10-year resource and load futures.
- Recommendation for additional transfer capability between neighboring regions to address energy deficits when surplus is available.
- Extensive consultation and collaboration with industry.
- Reliability improvement as the sole factor in determining prudence.

Outside of the ITCS Scope:

- Economic, siting, political, or environmental impacts.
- Alternative modeling approaches – ITCS results may differ from other analyses.
- Quantified impacts of planned projects.
- Recommendations for specific projects, as additional planning by industry would be necessary to determine project feasibility.
- Recent changes to load forecasts, renewable targets, or retirement announcements

The four components of the study scope are identified in the figure below:



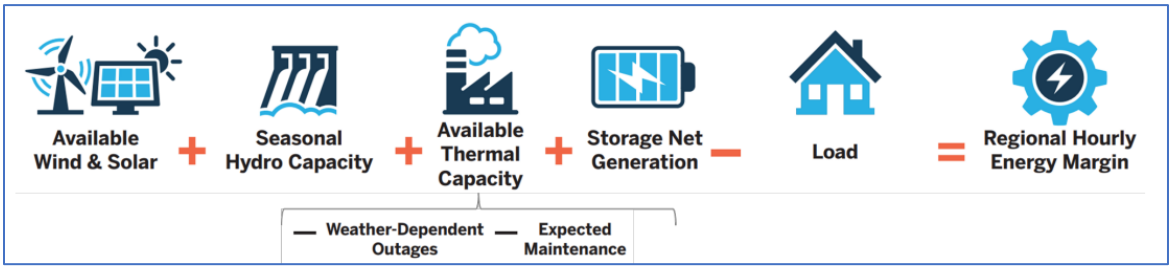
Part 1 consists of transfer capability analysis for 2024 (summer and winter) and 2033 (summer and winter). This transfer capability analysis produced a set of transfer capability limits between each neighboring planning region, to be used in Part 2 to help determine transfer capability additions that would be prudent to strengthen reliability of areas that are energy deficient under the studied conditions.

The study applied 12 past weather years to the 2033 load / resource mix using the current transfer capabilities as calculated in the first part of the study. This year was selected because interregional transmission projects typically require at least 10 years to be built, but forecasting demand and resources beyond that timeframe becomes increasingly speculative and uncertain.

To determine prudent additions to transfer capability and maintain focus on strengthening reliability, NERC worked with the ERO Enterprise, developed an approach so that consistent, objective, reasonable criteria could be applied for all areas. This approach involved the following:

- Determining conditions under which each area might potentially experience energy deficiencies. This depends on the resource portfolio of each area and the specific conditions being studied. These energy deficiencies will vary in duration, magnitude, and frequency.
- Identifying needs for prudent additions to interregional transfer capability. Projected energy deficiencies must be of sufficient severity to justify additions to interregional transfer capability.
- Prioritizing interfaces for transfer capability increases. Neighboring regions with the most surplus energy under the studied system conditions will generally be prioritized for additions.
- Analyzing reliability impacts. Additional studies will be required to ensure that the additions proposed to achieve the recommended transfer capability increases will adequately address reliability issues without creating other reliability issues, such as system instability under heavy transfer conditions.

The figure below shows the calculation method for the hourly energy margin:

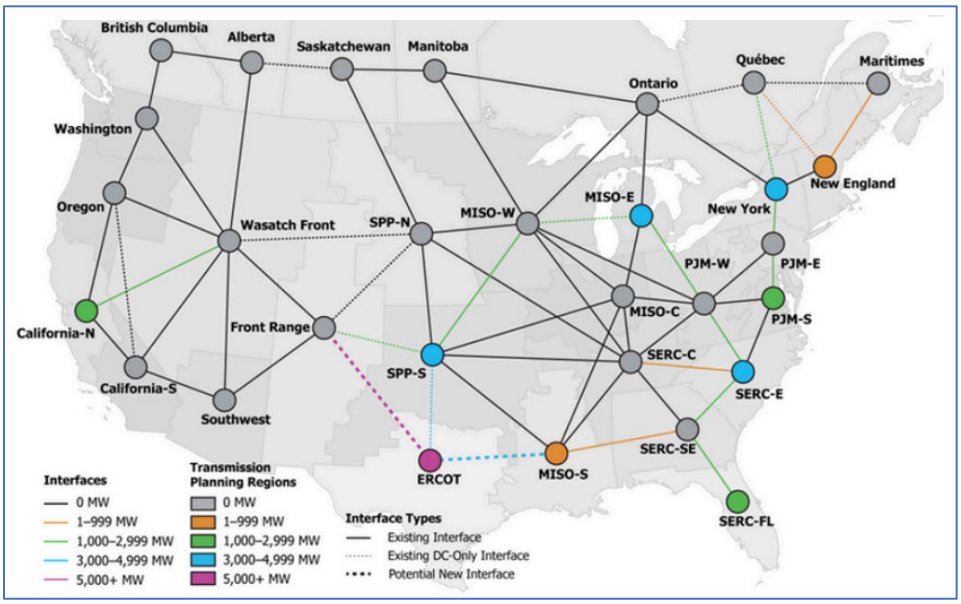


The results of the energy margin analysis provide an hourly, time-synchronized, locational, and consistent dataset, allowing for direct comparisons between TPRs. When one TPR has a low hourly energy margin (i.e., a low supply of resources relative to demand), the analysis considers the availability of resources and load in all neighboring TPRs simultaneously.

The ITCS used these results to develop a list of recommended additions to transfer capability from neighboring TPRs, including geographic neighbors without existing electrical connections. As a result, the ITCS recommended 35 GW of additional transfer capability to improve energy adequacy under the studied extreme conditions throughout the United States.

In two cases, it was not possible to eliminate all energy deficiencies, even by increasing transfer capability, due to wide-area resource shortages. In ERCOT and California North, resource deficiencies remained even after increasing transfer capability by 14 GW and 1 GW, respectively.

Prudent additions are based on 2033 resource mix and other study assumptions. The figure below shows the existing and potential 28 new interfaces where additional transfer capability is recommended, and the following table provides further detail.



Strengthening Reliability Through Additional Transfer Capability
ERCOT — 14,100 MW
SERC-E — 4,100 MW
New York — 3,700 MW
SPP-S — 3,700 MW
MISO-E — 3,000 MW
PJM-S — 2,800 MW
SERC-Florida — 1,200 MW
California North — 1,100 MW
New England — 700 MW
MISO-S — 600 MW
TOTAL — 35,000 MW

Table ES.1: Recommended Prudent Additions Detail

Increasing Energy Deficiency Hours

Transmission Planning Region	Weather Years (WY) / Events	Resource Deficiency Hours	Maximum Deficiency (MW)	Additional Transfer Capability (MW)	Interface Additions (MW)
ERCOT	Winter Storm Uri (WY2021) and nine other events	135	18,926	14,100	Front Range (5,700) MISO-S (4,300) SPP-S (4,100)
MISO-E	WY2020 Heat Wave and two other events	58	5,715	3,000	MISO-W (2,000) PJM-W (1,000)
New York	WY2023 Heat Wave and seven other events	52	3,729	3,700	PJM-E (1,800) Québec (1,900)
SPP-S	Winter Storm Uri (WY2021)	34	4,137	3,700	Front Range (1,200) ERCOT (800) MISO-W (1,700)
PJM-S	Winter Storm Elliott (WY2022)	20	4,147	2,800	PJM-E (2,800)
California North	WY2022 Heat Wave	17	3,211	1,100	Wasatch Front (1,100)
SERC-E	Winter Storm Elliott (WY2022)	9	5,849	4,100	SERC-C (300) SERC-SE (2,200) PJM-W (1,600)
SERC-Florida	Summer WY2009 and Winter WY2010	6	1,152	1,200	SERC-SE (1,200)
New England	WY2012 Heat Wave and two other events	5	984	700	Québec (400) Maritimes (300)
MISO-S	WY2009 and WY2011 summer events	4	629	600	ERCOT (300) SERC-SE (300)
TOTAL				**35,000**	

Key Findings include

- The North American system is vulnerable to extreme weather. Transmission limitations, and potential for energy inadequacy, were identified in all 12 weather years studied. Enhancing specific transmission interfaces could reduce the likelihood of energy deficits during extreme conditions.
- Reliability risks are highly dependent on regional conditions. The import capability needed during extreme conditions varied significantly across the country, indicating that a one-size-fits all requirement may be ineffective. An additional 35 GW of transfer capability is recommended across the United States as a vehicle to strengthen energy adequacy under extreme conditions:
  - ERCOT faces large energy deficits under various summer and winter conditions, including Winter storm Uri.
  - California North faces energy adequacy challenges during large-scale heat events in the Western Interconnection, such as the one that occurred in 2020.
  - Energy shortages in New York were observed during multiple events.
  - MISO-E, PJM-S, SERC-E, SERC-Florida, and SPP-S each have significant vulnerability to extreme weather (>1,000 MW).
  - Enhancing interfaces between Interconnections (Western, ERCOT, Eastern, and Québec) could provide considerable reliability benefits.
  - The inclusion of Canada highlights interdependence and opportunities to increase transfer capability.
- With sufficient available generation from neighboring systems, interregional transmission could mitigate certain extreme conditions by distributing resources more effectively, underscoring the value of transmission as an important risk mitigation tool. However, there are numerous barriers to realizing these benefits in a timely fashion.
- Some identified transmission needs could be alleviated by projects already in the planning, permitting, or construction phases. If completed, these projects could mitigate several risks highlighted by the ITCS, reinforcing their importance for grid resilience.
- The importance of maintaining sufficient generating resources underpins the study's assumptions. Higher than expected retirements (without replacement capacity) would lead to increased energy deficiencies and potentially more transfer capability needed than recommended in this study.
- The ITCS provides foundational insights for further evaluation. Transmission upgrades alone will not fully address all risks and a broader set of solutions should be considered, emphasizing the need for local resources, energy efficiency, demand-side, and storage solutions. A diverse and flexible approach allows tailored solutions specific to each TPR's vulnerabilities, risk tolerance, economics, and policies.

Results for New York area: Prudent additions are driven by multiple summer events across weather years 2008, 2010, 2011, 2013, and 2023. The WY2023 event was the most severe, with several hours of resource deficiency across a three-day period while much of the northeast also experienced reduced energy margins. Additional transfer capability totaling 3700 MW from PJM-E (1,800 MW) and Québec (1,900 MW) resolved all identified resource deficiencies. The planned Champlain Hudson Power Express is likely to address a significant portion of this need. The ability of the Beauharnois generating station to switch between Québec and New York may also address a portion of the need.

Due to the interconnected nature of the bulk power system, NERC is extending the study beyond the congressional mandate to identify and make recommendations for transfer capabilities from the United States to Canada and among the Canadian provinces, with results expected to be published in the first quarter of 2025.

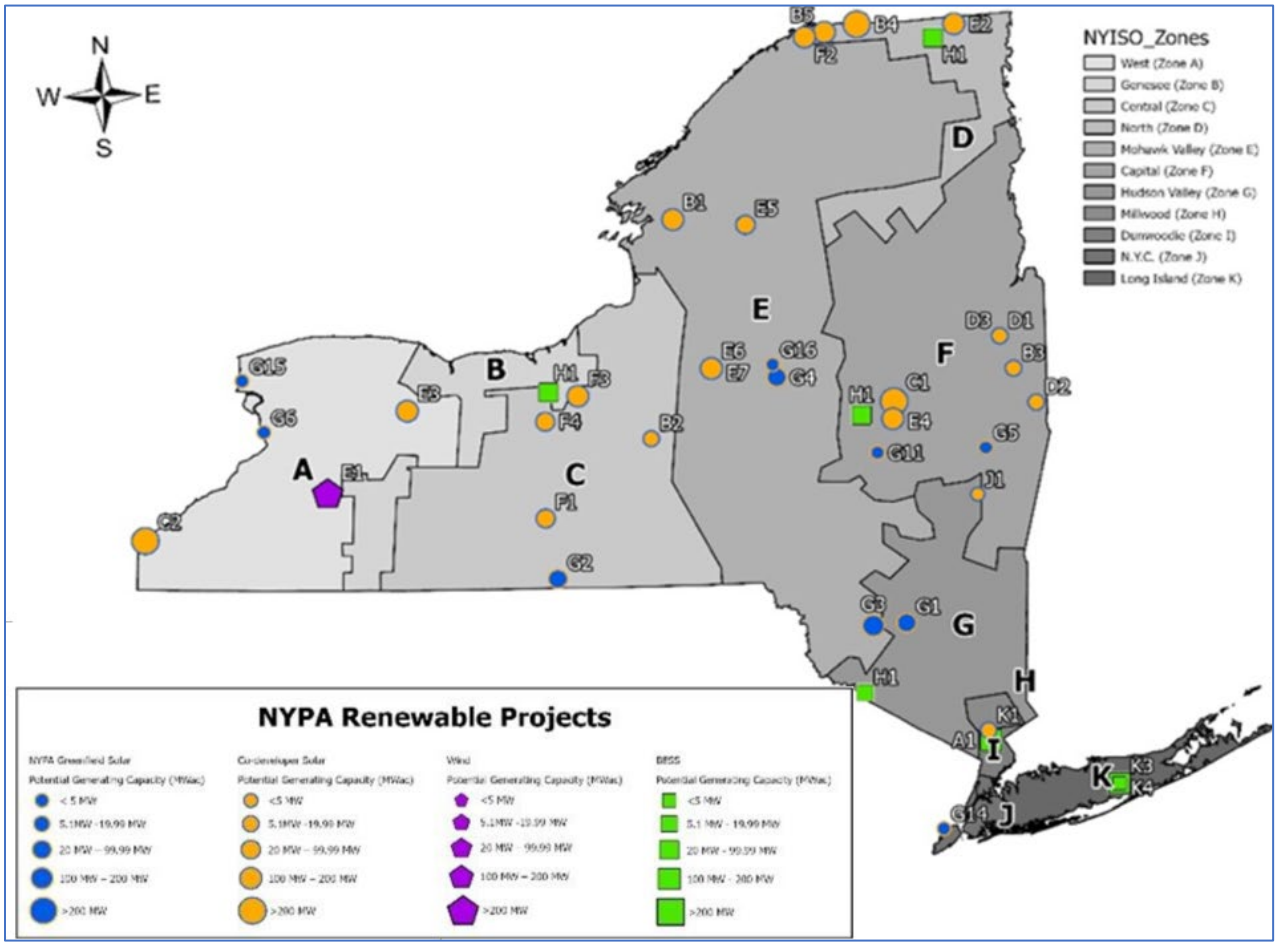
Additional information can be found in the ITCS Overview of Study Need and Approach, which includes examples of the role of transfer capability during the Western Interconnection Heatwave (2020), Winter Storm Uri (2021), and Winter Storm Elliott (2022).

NYPA releases draft strategic plan for 3.5 GW of renewables generation

On October 8th, the New York Power Authority (NYPA) announced the release of the Draft of the Strategic Plan for NYPA Renewables, covering the expansion of renewable energy resources in New York State. The release of the draft plan kicks off a 60-day public comment period, during which NYPA will host five in-person public hearings across the state and one virtual public hearing with morning and evening sessions to gain input from interested stakeholders such as community members and elected officials. The Power Authority will consider and incorporate feedback received through the stakeholder engagement process in finalizing the Strategic Plan. The final strategic plan and all projects will be presented to the NYPA Board of Trustees for approval. NYPA will publish the final plan on its website and submit it to the Governor and the Legislature by January 31, 2025.

NYPA has identified 40 renewable projects in every region of the state, representing a total capacity of 3.5 GW. In aggregate, the initial portfolio represents 40 projects, in every region of the State, with more than 3.5 GW of capacity, featuring solar PV (3,380 MW), and battery energy storage (270 MW). If enacted in its entirety, this portfolio would generate billions of dollars of public and private capital in new renewable energy generation and storage projects within the state. The Authority anticipates that as the contract negotiations move forward, some level of attrition should be expected from this inaugural tranche of projects. Further examination of the proposed projects, including their economics, community impacts and real-estate considerations, will determine their viability in the build out of the renewable portfolio.

At the same time, this is only the first tranche of NYPA Renewables projects. The proposed projects in the draft plan are located across the state and represent a variety of technologies, as shown on this map:



This plan is built on the continuing efforts of NYPA staff to pursue these strategies:

- Issuing a Request for Information (RFI) in January 2024 to identify developers interested in collaborating with NYPA. More than 170 entities expressed an interest in NYPA's renewable energy activities; several indicated a willingness and desire to partner with NYPA.
- Launching a Request for Qualifications (RFQ) in early 2024 to pre-qualify renewable energy and energy storage developers and investors to ensure our ability to rapidly partner and deploy projects. To date, NYPA has pre-qualified 84 developers and investors under the RFQ for potential collaborations that may arise in the future. The Power Authority has already engaged several of these qualified developers in negotiations to enable or accelerate renewable energy generation projects that are already in development. We are continuing to engage with qualified developers to pursue new opportunities on an ongoing basis.
- Conducting two statewide conferral processes with stakeholders and community members to gather their input to inform on our renewable development priorities.
- NYPA also engaged its sister agencies and public authorities, including the New York State Energy Research and Development Authority (NYSERDA), the New York State Office of General Services (OGS), and the New York State Department of Corrections and Community Supervision, to identify public lands suitable for development.
- NYPA's legal, finance, and taxation experts and outside counsel conducted comprehensive research on financial structures to maximize renewable energy development, while limiting risk to the Power Authority and its customers.
- NYPA and the Empire State Development Corporation, through the Job Development Authority (JDA), created a local development corporation that will act as a conduit bond issuer with the ability to finance NYPA's renewable energy generating projects.

In October 2024, the Power Authority's Board of Trustees voted in favor to:

- Establish a wholly-owned subsidiary that will allow NYPA to bring in external capital more easily, as well as to protect the Power Authority against project risks, both of which increase the amount of renewable energy that NYPA can deploy.
- Establish an initial investment of $100 million in new renewable energy generation.

The enactment included four new areas of responsibility for NYPA, one of which expanded the authority to develop, own, and operate renewable energy generation projects to help meet the state's clean energy goals. The expanded authority directed NYPA– beginning in 2025 and biennially thereafter– to develop and publish a renewable energy generation strategic plan that identifies our renewable energy generating priorities for the next two years. In addition, NYPA is directed to update the plan annually and may update the plan more often than annually if needed.

Beyond directing NYPA to build renewables, the budget enactment contained several other mandates:

- NYPA will work with the New York State Public Service Commission (PSC) to establish the Renewable Energy Access and Community Help (REACH) program to provide renewable energy bill credits to low- or moderate-income New Yorkers in disadvantaged communities.
- NYPA will invest up to $25 million annually in workforce training in collaboration with the New York State Department of Labor (DOL).
- NYPA will lead the Decarbonization Leadership Program, which calls for the development of energy and emissions profiles for state government's largest carbon-emitting facilities and decarbonization action plans that will guide state agencies on facility improvements that will reduce carbon emissions.
- NYPA will cease fossil fuel generation at its small natural gas power plants by the end of 2030, so long as electric system reliability and environmental conditions allow.

AAA: Cities Outpace Consumers in EV Adoption

This Article reviews the state of EV adoption with a focus on cities and municipalities. U.S. public officials know that, sooner rather than later, municipal fleets of gas- and diesel-powered vehicles will need to be replaced with EVs. While states can set their own timelines for the transition, many cities have started replacing at least some of their vehicles, including school and public buses and police cars.

Cities nationwide operate about 4 million cars, trucks and buses, according to Scientific American. While that is only slightly more than 1% of the 283 million vehicles traveling U.S. roads, the hope is that it could set off a trend. To meet their climate goals, many large cities are buying EVs for their municipal fleets at rates that outpace consumer purchases. Most car buyers are still on the fence about EVs. But if people are interacting with and riding in EVs every day, they may become more inclined to buy one.

"Seeing electric buses and municipal vehicles on the street can help raise awareness of EVs among the public," said a spokesperson for the Joint Office of Energy and Transportation, a new department established under the 2021 Bipartisan Infrastructure Law. "Installing charging infrastructure that can serve both fleet vehicles and the public helps increase confidence in the availability of convenient local charging."

Besides reducing carbon emissions, cities can benefit from lower fuel and maintenance costs when they electrify their fleets, according to the Alternative Fuels Data Center, a resource from the U.S. Department of Energy. The energy department also assists city and state governments adopt new EV technologies through the Clean Cities and Communities partnership, which provides tools to analyze fleet vehicle options and the infrastructure needed to support them.

In July, South Pasadena, California, unveiled the nation's first all-electric fleet of police cars. The police department is using 10 Tesla Model Y's as patrol vehicles and 10 Tesla Model 3s for administrators and detectives. Although, the cars may not be a good fit for the patrol officers. Tesla's autopilot safety feature prevents the cars from leaving the road when necessary. The front seats are a tight squeeze for officers with their duty belts and bulletproof vests and the rear section has only enough room for one detainee. There is also a concern that officers who are transporting prisoners a long distance may be unable to find a charging station.

Seattle has one of the most comprehensive plans for adopting electric vehicles through its Green Fleet Program. The city has 500 hybrid vehicles and more than 300 EVs. About 80% of its light-duty vehicle pool is completely electrified, including vehicles in its police, fire, and parks departments, as well as two municipally run utility suppliers.

California has set ambitious goals for EV conversion. New regulations call for using only zero-emissions short-haul trucks by 2035, and by 2045, using only electric medium- and heavy-duty vehicles, whenever possible. So far, police and other emergency vehicles, such as fire trucks and ambulances, are exempt. Some cities in the state have already shifted to EVs.

School Buses

School buses are steadily advancing in EV conversions. They have been a concern because most use diesel fuel and spend a lot of time idling, creating noxious fumes that pollute the air and are a health hazard. Electric school bus deployments grew nationwide to a total commitment of 12,164 buses since 2012, according to the World Resources Institute. Approximately 200,000 U.S. students travel to school on electric buses.

The Environmental Protection Agency's Clean School Bus Program has funded more than 67% of America's electric school buses and is slated to invest $5 billion through 2026 to reach the goal.

California leads the nation in electric school bus adoptions, with a commitment of more than 2,300 electric buses statewide; almost 70% have been delivered or are already in service. Illinois follows with commitments for 418 electric buses.

New York City has gone a step further and installed solar panels on the roofs of some electric school buses and integrated them into a smart energy hub. The buses store electricity, and any surplus can be fed into the city grid during periods of high demand. New York's utility supplier, Con Edison, is collaborating on the project with First Student, the country's largest school bus operator and an electrification leader.

Twelve electric school buses at First Student's Malta Street depot in Brooklyn are slated to get rooftop solar panels, replacing diesel buses. Four of the solar buses are already on the road and the rest are scheduled to be operational by next school year.

New York City is also adopting other electric vehicles. During Climate Week in October, Mayor Eric Adams announced a partnership called Hertz Electrifies New York City, whereby the rental car company will add more than 1,700 EVs to its city fleet. The partnership will increase awareness about electric vehicles, and create about 100 jobs. Hertz also plans to donate EVs to four city high schools to introduce students to electric vehicles.

Plans to convert the Big Apple's 5,800-plus municipal bus fleet – the largest in the country – to electric vehicles are also in the works. Metropolitan Transportation Authority officials have set a goal of going all electric by 2040 and launched 60 new electric buses in May. At the end of 2023, the MTA pledged $552.8 million to purchase 205 low-floor battery-electric buses and 224 low-floor 60-foot clean diesel buses.

In the Midwest, Madison, Wis., now has 100 electric vehicles in its fleet, more than any other municipality in the state. Madison's goal is to be the first large government fleet in North America to ditch gas-powered cars by 2030.

Examples of initiatives at five other major cities can be found here. They include Anaheim, Santa Barbara, Boise, Anchorage, and Orlando.

Taxis

Self-driving EV taxis are on the roads in some cities already. Commuters in San Francisco and Phoenix can hail a Waymo from their phones 24/7, and a driverless car will take them to their destination. Service is scheduled to start soon in Austin, Texas, and Atlanta. Tesla plans to launch trials of driverless taxis, known as Cybercabs, next year in Texas and California. Self-driving Model 3s and Model-Ys are expected to use wireless induction charging.

EV Mail Trucks

Driven by the Federal Sustainability Plan, which calls for federal agencies to transition the entire U.S. fleet - the largest in the world — to all electric by 2035, electric mail trucks will be coming to a street near you soon. New U.S. Postal Service trucks were unveiled in Atlanta earlier this year and include such luxuries as air conditioning, additional cargo space and more headroom. The redesigned trucks are part of the Postal Service's $40 billion Delivering for America reform plan to support the federal government's goal of shrinking its carbon footprint by 40% within the next five years. By 2028, the Postal Service plans to deploy about 66,000 electric vans across the U.S. and install hundreds of thousands of chargers.

Additional Links:	Electric Vehicle Tax Credits Explained	Link
	Expert Q&A: The Impact of EVs on the Electric Grid	Link
	Using Your Electric Car for Bidirectional Charging	Link

Gothamist: New York's rules on Turbine Transportation are Blowing its Climate Goals Out of Reach

This Article describes how State Department of Transportation policies are creating a delivery bottleneck in New York that will severely limit the State's ability to reach clean energy goals on schedule. State Transportation rules consider wind turbines to be "Super Loads," subject to limited hours and frequency of transportation. Critically, the big rigs hauling the turbine parts must be escorted by state troopers working overtime. The rules often lead to absurd situations when troopers escorting a turbine reach the limit of their jurisdiction and must then stop and wait for troopers from the next jurisdiction to take over. The cargo must then be re-inspected.

These policies restrict wind farm developers to the delivery of two-and-a-half turbines each week. New York state aims to produce 4,000 megawatts of onshore wind energy by 2030. As of September 2023, New York had more than 2,500 megawatts of wind capacity at 32 utility-scale wind farms, according to the federal Energy Information Administration.

Invenergy, a wind power developer anticipates that they will need to start delivering 1,000 to 1,500 Super Loads per year starting late next year. Over the next five years, Invenergy has contracts to deliver roughly 1,000 megawatts of wind power in New York. That equals about 3,500 super loads, or nearly 300 turbines. But it took a calendar year to haul 27 turbines just 100 miles to a small wind farm in Lowville in the North Country.

The climate law requires state agencies to prioritize green energy projects. But the turbines are subject to the same rules that apply to transportation of beams for bridges and other large cargo. A report released in July by the nonprofit New York Lawyers for the Public Interest found that state agencies, including the transportation department, are impeding the climate law.

The components of just one turbine require about 12 Super Load trailers, which are defined as any vehicles that exceed 16 feet in height or width, are longer than 160 feet, or are heavier than 200,000 pounds. The turbine parts are larger than prefabricated homes occasionally hauled on highways.

The turbine bottleneck begins on the St. Lawrence River, where deliveries are limited to a window from March to November, mainly due to weather. Once a shipment reaches port, the turbines are loaded on trailers bound for the job site. This requires an escort of up to five state troopers per load. But arranging those troopers is often a logistical challenge, particularly when teams of troopers from multiple jurisdictions must be scheduled. The turbine manufacturers pay for the troopers' overtime.

A bill introduced nearly two years ago could ease restrictions and fast-track delivery, but the legislation has been held up in committee in both the state Assembly and Senate.

Vestas, a turbine manufacturer, can only deliver about 65 turbines every year in New York. At that rate, it will take a decade to deliver the 700 turbines Vestas has under contract. Matthew Copeman, a spokesperson for Vestas, said the company is in a bind because the permits and contracts for those projects require they be operational in three years. "With the current restrictions and requirements in place, it's not feasible to deliver two onshore projects to New York at the same time. They must be done subsequently," Copeman said.

According to a white paper published in August by Vestas, the state could expedite wind projects by lifting weekend and evening travel restrictions, and allowing trucks to leave every 15 minutes instead of hourly. The state could also ease restrictions on routes and turbine deliveries during winter months. The paper recommended assigning a maximum of two escorts per load and allowing other types of escorts, such as park police, fire department and private escorts, which are used in other states.

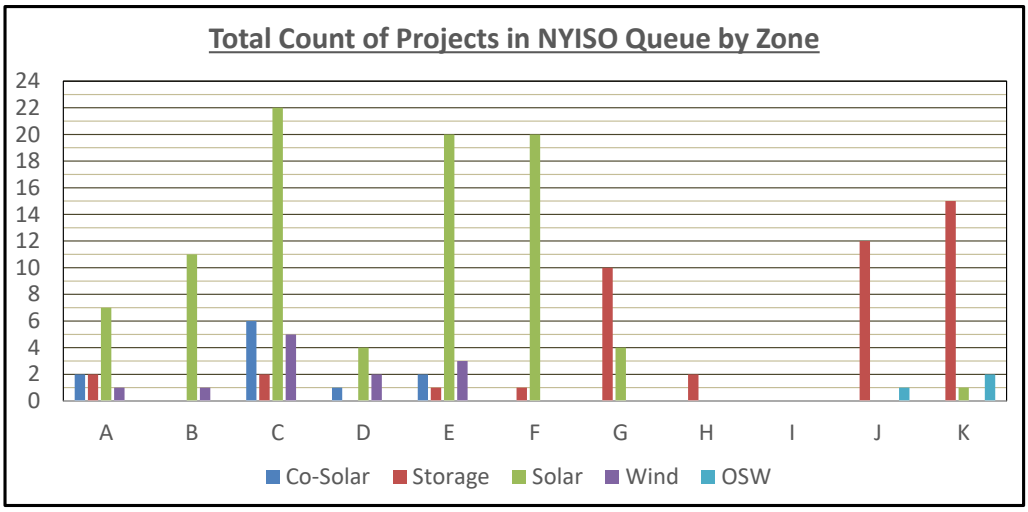
Interconnection Queue: Monthly Snapshot – Storage / Solar / Wind / CSRs (Co-located Storage)

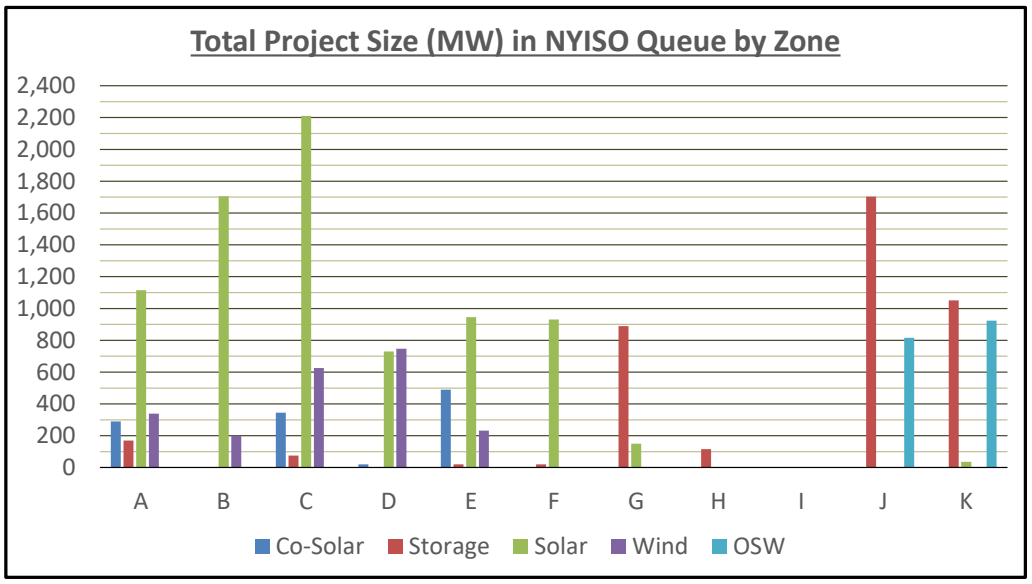
The intent is to track the growth of Co-Located Solar / Storage, Energy Storage, Solar, Wind, and Offshore Wind (OSW) projects in the NYISO Interconnection Queue, looking to identify trends and patterns by zone and in total for the state. The information was obtained from the NYISO Interconnection Website, based on information published on November 19th, and representing the Interconnection Queue as of October 31st. Note that 74 projects were added, and 24 were withdrawn during the month of October.

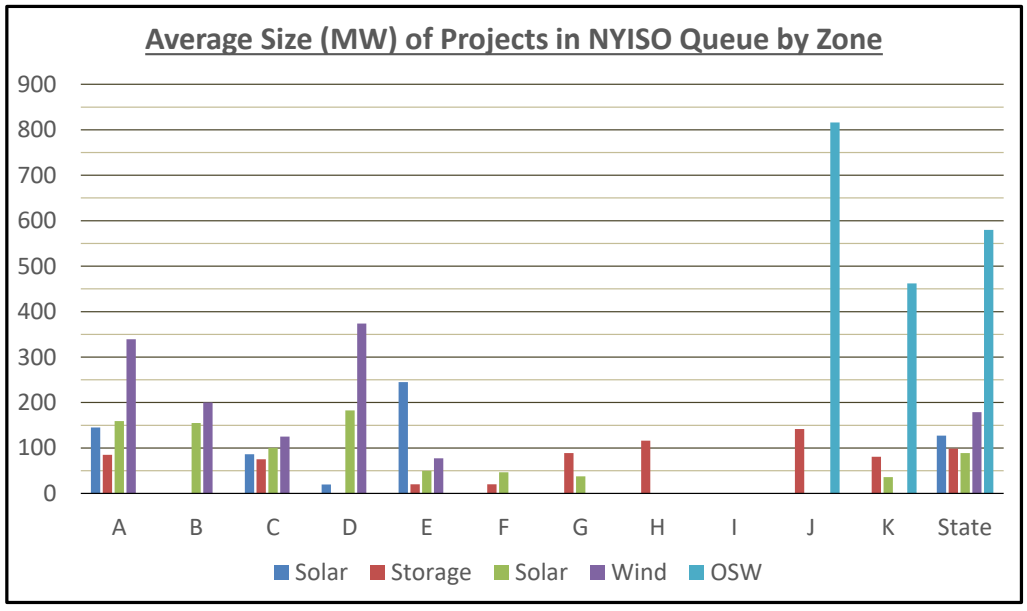
Total Count of Projects in NYISO Queue by Zone					
Zone	Co-Solar	Storage	Solar	Wind	OSW
A	2	2	7	1	
B			11	1	
C	4	1	22	5	
D	1		4	2	
E	2	1	19	3	
F		1	20		
G		10	4		
H		1			
I					
J		12			1
K		13	1		2
State	9	41	88	12	3

Total Project Size (MW) in NYISO Queue by Zone					
Zone	Co-Solar	Storage	Solar	Wind	OSW
A	290	170	1,115	339	
B			1,705	200	
C	345	75	2,211	626	
D	20		730	747	
E	490	20	946	232	
F		20	931		
G		889	150		
H		116			
I					
J		1,703			816
K		1,051	36		924
State	1,145	4,044	7,823	2,144	1,740

Average Size (MW) of Projects in NYISO Queue by Zone					
Zone	Solar	Storage	Solar	Wind	OSW
A	145	85	159	339	
B			155	200	
C	86	75	100	125	
D	20		183	374	
E	245	20	50	77	
F		20	47		
G		89	38		
H		116			
I					
J		142			816
K		81	36		462
State	127	99	89	179	580


Total Count of Projects in NYISO Queue by Zone
24
22
20
18
16
14
12
10
8
6
4
2
0
A
B
C
D
E
F
G
H
I
J
K
Co-Solar
Storage
Solar
Wind
OSW


Total Project Size (MW) in NYISO Queue by Zone
2,400
2,200
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
A
B
C
D
E
F
G
H
I
J
K
Co-Solar
Storage
Solar
Wind
OSW


Average Size (MW) of Projects in NYISO Queue by Zone
900
800
700
600
500
400
300
200
100
0
A
B
C
D
E
F
G
H
I
J
K
State
Solar
Storage
Solar
Wind
OSW