

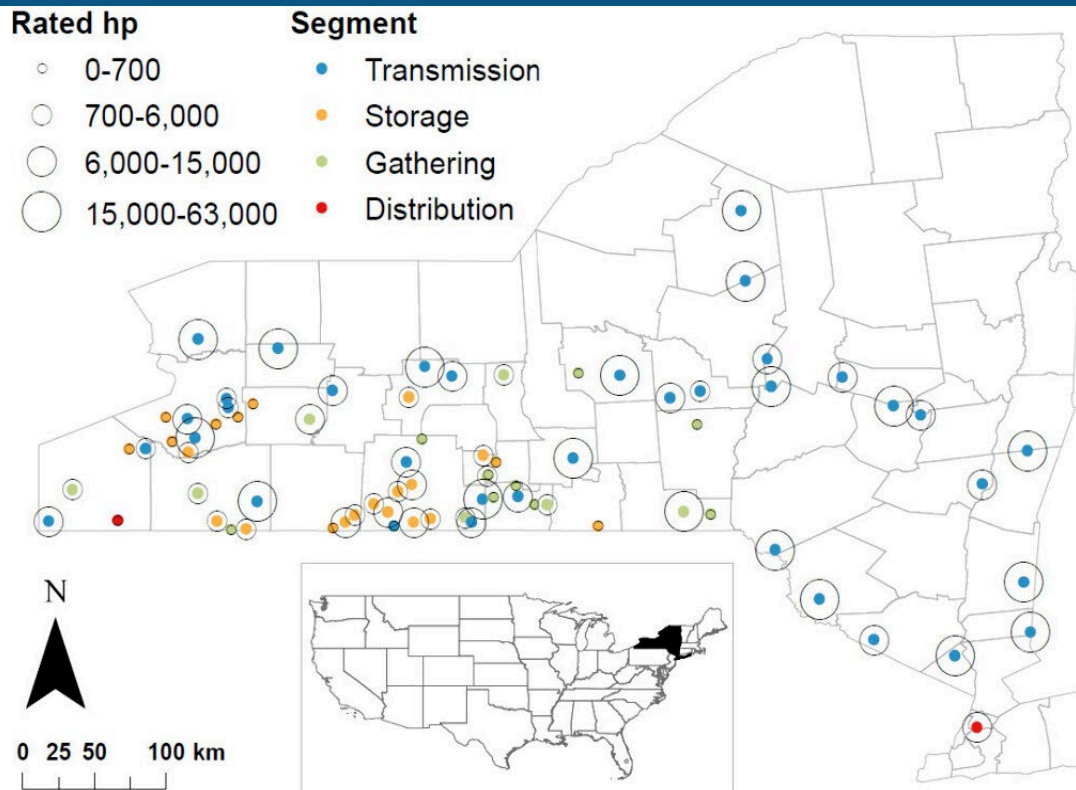
Featured Research: Methane Measurements at New York Compressor Stations

Methane (CH₄) has a global warming potential that is 84 times that of carbon dioxide over 20 years. The accurate inventory of methane emissions from facilities within New York State (NYS) is critical to identifying and optimizing investments in methane mitigation.

State emission inventories identify midstream natural gas transmission and storage compressor stations as accounting for the largest share of anthropogenic methane emissions. However, those emission estimates are based on national emissions inventory methods that are dated and are unlikely to represent the composition, operation, and specific regulatory requirements that apply to compressor stations in New York.

Through a competitively awarded research solicitation, NYSERDA supported Professor Arvind Ravikumar of the Harrisburg University of Science and Technology and University of Texas, Austin to aerially measure methane emissions at all New York natural gas transmission and storage compressor stations sites. These aerial measurements were correlated with detailed operational data provided by compressor station owners to develop State-specific methane emission factors and identify any discrepancies with current methane inventory estimates.

Compressor Stations by Segment and Horse-Power (hp) throughout New York State



(Article Highlight, continued...)

In a [study](#) recently published in the *Journal of Environmental Science and Technology*, Ravikumar et al. observed that 20% of New York stations accounted for 74% of total station CH₄ emissions. Emissions at engine-driven compressor stations were found, on average, 3 to 4 times higher than emissions at turbine-driven compressor stations, thus demonstrating the need for separate emission factors. Site-level CH₄ emissions showed a strong correlation with operational parameters, such as the number of operating compressor units, operational horsepower, and the type of compressor (reciprocating vs. centrifugal).

Overall, CH₄ emissions measured at the midstream compressor stations in the study were significantly lower than was estimated for the NYS inventory. After accounting for differences in compressor station activity data, differences in engine and turbine-based stations, and the application of measurement-informed emissions factors from the aerial surveys, the authors estimated that methane inventories from midstream transmission compressor station and storage sites were 72% and 69% lower than reported in 2022 NYS inventory estimates, respectively.

The authors recommend these updated emission factors be considered in subsequent State emission inventories.

Research Term of University of Texas, Austin and Scientific Aviation in May 2021



Photo Credit: NYSERDA



Offshore Wind

- Regional Fisheries Compensation Fund:** The Multi-State effort to advance a regional fisheries compensation fund has continued to make significant progress. The Regional Fund Administrator (RFA) continues to engage with stakeholders during one-on-one meetings, attend key stakeholder meetings like the Maine Fishermen's Forum on February 28th and hold oversight committee meetings. The RFA held a Design Oversight Committee (DOC) with commercial fishermen, states and developers on March 31st and held a For-Hire Recreational Committee (FHRC) with recreational fishermen, states, and developers on April 1st. The focus of these meetings was to review commonalities and differences from ongoing engagement efforts and to focus the committees on solutions around important process components like eligibility within the fishing industry sectors. The RFA plans to attend future fisheries council meeting to further engage with the fishing industry, State fisheries managers, and with the offshore developer community and states. The RFA has also launched a project website that includes future meeting dates, project materials, and soon to be release DOC and FHC member bios: <https://www.rfainfo.com/>

Captain Tony DiLernia at the New York Boat Show



Photo Credit: NYSEDA

- New York Boat Show:** Captain Tony DiLernia, NYSEDA's Recreational Fisheries Liaison, attended and staffed a booth the NY Boat Show from January 21st through January 26th, the National Marine Manufacture's Association Atlantic City Boat Show from February 26th through March 2nd, and the Rhode Island Saltwater Anglers Association Trade Show in Providence, Rhode Island from March 7th through March 9th. In total more than 75,000 individuals attended these three events with over 1,000 people stopping by the booth to engage with Tony to gather information about whales, fishing access, and project status on offshore wind projects in active development across the Mid-Atlantic and Southern New England.
- Fisheries Research Update:** Previously funded fisheries research projects continue to make progress. Rutgers University's project, to evaluate growth and survival rates of hatchery raised clams to determine if stock enhancement projects are a valuable mitigation option continues to evaluate field data collected last year. The project will publish final results in late 2025. Stony Brook University's project to evaluate impacts of changes in fisheries survey

(Offshore Wind, continued...)

indices on stock assessment for four key Mid-Atlantic stocks and explore mitigating strategies to minimize offshore wind impacts on stock assessment performance continues to finalize modeling solutions that could be used for impacted stock assessments. They are currently working with the fisheries management councils and federal partners about how best to implement final results into current fisheries management practices to have maximum impact. Final results of this project are scheduled to be made public in late 2025. The Commercial Fisheries Research Foundation's project to assess the viability of mechanical jig systems in the New York Bight and southern New England to provide commercially viable alternative gear opportunities for the fishing industry is entering its second and final field season. The project's field season will begin in June and run through November in areas around the Block Island Wind Farm. At this time, the sampling protocols are being reviewed with the participating fishermen and gear modifications have been completed. This project plans to be completed at the end of 2026.

- **Fisheries Technical Working Group (F-TWG):** The F-TWG met on April 2nd to learn about ongoing shellfish stock enhancement efforts. This topic discussed research efforts, federal regulatory considerations, and next steps to advance stock enhancement for surfclam and sea scallop as a potential mitigation strategy to reduce the impacts from offshore wind development. A meeting summary and presentation materials are posted on the F-TWG website: <https://nyftwg.com/meeting-summaries/>
- **Environmental Technical Working Group (E-TWG):** What are the effects of sound on marine mammals? What are Protected Species Observers and what data do they collect about marine mammals? Does offshore wind energy development kill whales? The New York Offshore Wind Environmental Technical Working Group (E-TWG) has published answers to [these questions and more](#).
- **Regional Wildlife Science Collaborative (RWSC):** The RWSC published a [Request for Proposals](#) to support regional monitoring and research for marine wildlife and habitat in U.S. Atlantic water. The RWSC is allocating \$3.4 million in funding from Empire Wind 1, through their agreement with NYSERDA, to fund regional research. Focal topics include a vulnerability assessment and power analyses to support marine bird displacement study design; and characterization and assessment of potential effects from offshore wind infrastructure on hydrodynamics and ecology.
- **Webinar Series:** The E-TWG hosts a library of free, publicly available webinars related to offshore wind energy development and wildlife. Nearly [200 webinars](#) are now available.

Ecosystem Response

- **Adirondack Research Forum:** The 22nd Adirondack Research Forum was held on March 31 – April 1, 2025, at the Atmospheric Sciences Research Center (ASRC) Whiteface Mountain Field Station in Wilmington, NY. Adirondack research was presented in a mix of presentations and posters, highlighting



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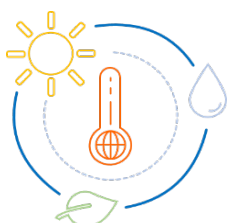
ASRC Whiteface Field Station featuring Mesonot and Casnet



Photo Credit: NYSERDA

work in climate change, acid deposition and recovery, fisheries, ecology, harmful algal blooms, and monitoring. Several presentations highlighted NYSERDA funded projects including forthcoming research in soil carbon stock changes from land use conversions associated with solar development, long-term trends in the chemistry of Adirondak lakes in response to decreased acid deposition, and an update on the Survey of Climate Change in Adirondack Lake Ecosystems (SCALE) initiative and pilot projects. Additionally, ASRC provided tours of their Whiteface Mountain field station and White Brook United States Geological Survey.

- Loon Monitoring:** The Adirondack Center for Loon Conservation (ACLC) continued their long-term monitoring of the Common Loon in the Adirondack State Park and completed their 2024 data collection and annual report. The results are made public on the [ACLC website](#). In 2024, the ACLC monitored 116 nesting loon pairs for reproductive success and analyzed feather and blood samples from 18 loons to provide an indication of long-term mercury accumulation. The ACLC’s scientific research provides a broader understanding on the impact of climate change and airborne mercury pollution on ecosystems in the Adirondack State Park. Additionally, the ACLC conducted community outreach with over 10,000 people touring the Adirondack Loon Center in Saranac Lake and over 2,000 people attending presentations, camp and class programs, guided paddles, and community events such as the Annual Loon Celebration and Loon Zooms.



Climate Change

- NYS Adaptation and Resilience Plan:** NYSERDA staff continue to work on the statewide adaptation and resilience plan. The launch of the planning process was announced by the Governor during Earth Week. The plan will establish a statewide framework to guide adaptation planning and implementation, and a coordinated strategy to increase resilience, build adaptive capacity across New York communities, and develop tools and resources to help communities thrive in

(Climate Change, continued...)

a changing climate. Over the course of the next year, the State will engage with local partners, community leaders, practitioners, and experts in the first phase of plan development. <https://dec.ny.gov/environmental-protection/climate-change/climate-change-adaptation-resilience-planning/new-york-state-adaptation-and-resilience-plan>

- **Program Research Plan:** The Environmental Research Program has begun development of the climate impacts and adaptation component of the program's research plan. A process has been identified to elicit input on research needs and information gaps from a wide range of stakeholders, which will include the release of [Request for Information \(RFI\) 6024: Inform Climate Change Impacts and Adaptation Research Planning](#) in June 2025. Development of the research plan will continue throughout the year. The most-recent research plan can be found here: <https://www.nyserra.ny.gov/-/media/Project/Nyserda/Files/Publications/Research/Environmental/climate-change-adaptation-report.pdf>



Land Based-Renewables

- **Agricultural Technical Working Group (A-TWG):** The Solar Scorecard Specialist Committee met twice in the first quarter of 2025 to help shape the next iteration of the scorecard in response to feedback on the 2024 Scorecard and data from bids submitted to the last three years of annual solicitations for largescale renewables under the Clean Energy Standard. The solar scorecard helps guide large scale solar siting and design aligned with the State's agricultural and other environmental priorities.
- **Agrivoltaic Research and Demonstration Projects RFP:** NYSERDA released a solicitation (RFQL 5987) to establish a qualified Agrivoltaics Research Contractor to provide services to collect, analyze, synthesize, and report agronomic, social, and environmental data related to agrivoltaics demonstration sites secured through RFP 5752: Agrivoltaics Demonstration Projects. Selection and execution of a contract is anticipated in Fall 2025, along with final awardee announcements of the Agrivoltaic Research and Demonstration projects from RFP 5752 and commencement of several of those projects.

Program Reports and Papers

Air Quality and Related Health Research: Particulate Matter (PM), Ozone and Co-Pollutants

- Pitiranggon, M., Johnson, S., Spira-Cohen, A., Eisl, H., & Ito, K. (2025). Determining Sources of Air Pollution Exposure Inequity in New York City Through Land-Use Regression Modeling of PM_{2.5} Constituents. *Pollutants*, 5(1), 2. <https://doi.org/10.3390/pollutants5010002>
- Qi, Q., Xue, Y., Madani, N. A., Tangang, R. T., Yu, F., Nair, A., Romeiko, X. X., Luo, G., Brackett, I., Thorncroft, C., & Lin, S. (2025). Individual effects and interactions between ultrafine particles and extreme temperatures on hospital admissions of high burden diseases. *Environment International*, 197, 109348. <https://doi.org/10.1016/j.envint.2025.109348>
- Ravikumar, A. P., Li, H., Yang, S. L., & Smith, M. L. (2025). Developing measurement-informed methane emissions inventory estimates at Midstream Compressor stations. *ACS ES&T Air*, 2(3), 358–367. <https://doi.org/10.1021/acsestair.4c00237>
- Rogers, M. J., Joo, T., Hass-Mitchell, T., Canagaratna, M. R., Campuzano-Jost, P., Sueper, D., Tran, M. N., Machesky, J. E., Roscioli, J. R., Jimenez, J. L., Krechmer, J. E., Lambe, A. T., Nault, B. A., & Gentner, D. R. (2025). Humid Summers promote urban aqueous-phase production of oxygenated organic aerosol in the Northeastern United States. *Geophysical Research Letters*, 52(4). <https://doi.org/10.1029/2024gl112005>
- Yang, S. L., & Ravikumar, A. P. (2025). Assessing the performance of Point Sensor Continuous Monitoring Systems at midstream natural gas compressor stations. *ACS ES&T Air*. <https://doi.org/10.1021/acsestair.4c00227>

Land Based-Renewables

- Williams, H., Wang, Y., Yuan, B., Gómez, M., Heuvel, J., & Zhang, M. (2025). Bringing solar to agriculture: An interdisciplinary design and analysis of a Concord grape agrivoltaic system. *Applied Energy*, 292, 126021. <https://doi.org/10.1016/j.apenergy.2025.126021>