

Cross-Sectoral Economic Impact Analysis of Climate Change in New York State

Chapter 11: Conclusions

Final Report | Report Number 26-19 | August 2026



NYSERDA
New York State Energy Research
and Development Authority

NYSERDA's Mission:

NYSERDA catalyzes New York's clean energy transition.

Our Vision:

Clean energy that supports a healthier and thriving future for all New Yorkers.

Our Promise to New Yorkers:

NYSERDA serves New York State as a trusted and credible resource for energy information, policies, and programs, through objective analysis and planning, innovative solutions, and impactful investments that are valued by New York residents and businesses.

Cross-Sectoral Economic Impact Analysis of Climate Change in New York State

Chapter 11: Conclusions

Final Report

Prepared for:

New York State Energy Research and Development Authority

Albany, NY

Amanda Stevens

Senior Project Manager

Prepared by:

Industrial Economics, Inc.

Cambridge, MA

James Neumann, Principal

Jason Price, Principal

Notice

This report was prepared by Industrial Economics, Inc., for the New York State Energy Research and Development Authority (NYSERDA). The opinions expressed do not necessarily reflect those of NYSERDA or the State of New York, and references do not constitute an implied or expressed recommendation or endorsement. If you are the copyright owner and believe a NYSERDA report has not properly attributed your work to you or has used it without permission, please email print@nyserda.ny.gov.

Information contained in this document, such as web page addresses, is current at the time of publication.

Preferred Citation

New York State Energy Research and Development Authority (NYSERDA). 2026. “Cross-Sectoral Economic Impact Analysis of Climate Change in New York State: Chapter 11, Conclusions.” NYSERDA Report Number 26-19. nyserda.ny.gov/publications

Abstract

This study quantifies the projected economic impacts of climate change on New York State’s people, environment, and assets for three future eras of the twenty-first century. The overall goal of this economic analysis has been to present results for as comprehensive a scope as is reasonably supported by existing literature. Although this report does not make policy recommendations, it provides estimates of the future economic cost of climate change in New York State, which may be useful in informing and prioritizing both mitigation and adaptation decisions and strategies. Nonetheless, limitations in the availability of data, models, and methods to assess all possible aspects of climate change on economic activity in New York State mean that there are gaps in the coverage of this study. In this chapter, we address three topics that may be helpful in the design of future assessments of this type, in New York State or elsewhere. First, we briefly review some key findings of this report, important context for thinking about future research needs and directions. Second, we identify some overall trends in the emerging climate impacts literature, specific to U.S impact estimates but not necessarily in New York State, that could yield insights, new data, and new methods to improve future estimates. Third, we present a short list of areas important to the State that have the greatest potential to substantially improve future estimates or quantify impacts that are currently only qualitative.

Keywords

climate change, impacts, economics, economic impacts, projections, scenarios, adaptation, socioeconomic, findings, trends, recommendations, research

Acknowledgements

Industrial Economics Inc., (IEc) is grateful to the NYSERDA Project Manager, Amanda Stevens, for her valuable insights and leadership throughout the entire study. We also thank the broader NYSERDA team for reviewing the findings from this study. We are also grateful for helpful and detailed comments on a prior draft from peer reviewers Dr. James Rising and Dr. Elisabeth Gilmore, while also noting that any remaining errors, while regrettable, are IEC's sole responsibility.

We also wish to acknowledge the valuable insights and contributions from IEC subcontractors Resilient Analytics, Dr. Cameron Wobus, and Dr. Michael Craig, as well as collaborators from Energy and Environmental Economics (E3). Resilient Analytics provided detailed impact and adaptation modeling for the Transportation sector (Chapter 8); Dr. Wobus supported the inland flood risk analyses in the Buildings sector (Chapter 3); and Dr. Craig supported analyses of the impact of warming on thermal generation performance and transmission line capacity in the Energy sector (Chapter 5).

Table of Contents

Notice	ii
Preferred Citation	ii
Abstract.....	ii
Keywords	iii
Acknowledgements	iii
Acronyms and Abbreviations	v
Report Summary	S-1
1 Introduction	1
2 Findings from This Report.....	1
3 Important Trends in Emerging Literature	3
4 Focus Areas for Future Research	4
4.1 Fill Important Gaps in Sectoral and Impacts Coverage	5
4.1.1 Improve Comprehensiveness of Coastal Flood Impact Category.....	5
4.1.2 Improve Coverage and Methodologies for Quantifying Impacts in the Agriculture Sector...	5
4.1.3 Assess Air Pollution Exposure Impact of Increases in Wildfire Frequency in Quebec, Canada	6
4.1.4 Consider Effects of Climate Change on Groundwater Recharge	6
4.1.5 Broaden the Ecosystem Service Sector Coverage.....	7
4.2 Examine Cross-Sectoral and Cascading Impacts	7
4.3 Incorporate More Advanced and New York State-Specific Adaptation Analysis in the Health Sector and Improve Spatial Disaggregation of those Results	8
5 References	8

Acronyms and Abbreviations

DOE	U.S. Department of Energy
EJ	environmental justice
GDP	gross domestic product
GHG	greenhouse gas
GSP	gross state product
NASEM	National Academies of Science, Engineering, and Medicine
NYSERDA	New York State Energy Research and Development Authority
PCHES	Program on Coupled Human and Earth Systems
SSP	Shared Socioeconomic Pathway
USD	U.S. dollars

Report Summary

This chapter is part of a report that projects the economic impacts of climate change in New York State across eight sectors through 2100 under multiple climate, socioeconomic, and adaptation scenarios. The research team identified and applied existing literature and models to quantify or qualitatively assess climate-related impact categories, using standardized climate and socioeconomic inputs. The analysis used downscaled Coupled Model Intercomparison Project Phase 6 (CMIP6) climate data and gross domestic product (GDP)/population projections to estimate sector-specific impacts under Shared Socioeconomic Pathway (SSP)2-4.5 and SSP5-8.5 emissions scenarios. While the estimates reflect current best practices and modeling capabilities, limitations such as data availability, missing feedback loops, and gaps in demographic sensitivity likely lead to underestimation of total impacts.

1 Introduction

This study quantifies the projected economic impacts of climate change on New York State’s people, environment, and assets for three future eras of the twenty-first century. Taken together, the quantitative and qualitative results of this report attempt to provide an assessment of the primary, direct economic impacts of climate change on New York State resources.

The overall goal of this economic analysis has been to present results for as comprehensive a scope as is reasonably supported by existing literature. The results reflect consistent geography, socioeconomic inputs, and climate scenarios. They also incorporate economic impact model outputs that represent potential damages as well as potential benefits of climate change. Although this report does not make policy recommendations, it provides estimates of the future economic cost of climate change in New York State, which may be useful in informing and prioritizing both mitigation and adaptation decisions and strategies.

Nonetheless, limitations in the availability of data, models, and methods to assess all possible aspects of climate change on economic activity in New York State mean that there are gaps in the coverage of this study. In this chapter, we address three topics that may be helpful in the design of future assessments of this type, in New York State or elsewhere. First, we briefly review some key findings of this report, important context for thinking about future research needs and directions. Second, we identify some overall trends in the emerging climate impacts literature, specific to U.S impact estimates but not necessarily in New York State, that could yield insights, new data, and new methods to improve future estimates. Third, we present a short list of areas important to the State that have the greatest potential to substantially improve future estimates or quantify impacts that are currently only qualitative.

2 Findings from This Report

One of the main conclusions from this report is that the total quantified economic impacts of climate change across New York, across all sectors and impacts considered, could be large. The impacts we were able to quantify totaled about \$5 billion (in 2020 U.S. dollars [USD]) annually in the near-century period (2030s), grow to \$10 billion to \$20 billion annually in the midcentury (2050s), and to \$20 billion to \$80 billion annually by the late century (2080s). These impacts assume a reactive response, roughly equivalent to responding to climate damage as it happens, but without foresight into whether a proactive change in practice or strategic investment could provide a more cost-effective response.

These economic impacts are not evenly distributed across sectors or regions. The human health and safety sector, and in particular estimates associated with mortality from extreme temperatures, are by far the largest total impacts for New York State. By the 2050s, extreme-temperature mortality accounts for about one-third of the multi-sector total under the more moderate emissions scenario (Shared Socioeconomic Pathway [SSP]2-45) and more than half of the total under the higher SSP5-85 emissions scenario. Other sectors with large quantifiable statewide impacts include transportation (driven by impacts to roads, rail, and coastal roads) and buildings (with impacts roughly equally split between impacts from coastal and inland flood hazards). The society and economy sector also exhibits large overall impacts in the late century period particularly for the labor sector, connected to reduced working capacity associated with extreme heat, and particularly for the more severe climate hazards presented under a higher greenhouse gas (GHG) emissions scenario (SSP5-85).

Other sectors, such as agriculture, may have smaller absolute quantified impacts but represent significant components of economic activity, when viewed in context. For example, in the agriculture sector, which contributed \$3.3 billion to gross state product (GSP) in 2021, roughly 70% of gross receipts derived from the dairy industry. An annual impact of \$142 million in the midcentury equals about 6% of the current dairy share of GSP, and the losses in the 2080s could be more than twice as high.

Overall, the impacts increase over time as climate change worsens and are larger for the high (SSP5-85) emissions scenario compared to the more moderate (SSP2-45) emissions scenario. As noted several times in the report, however, not all impacts could be modeled quantitatively, and filling gaps in the scope of economic impact estimation, with a focus on impacts that could be important for New York State, remains a key focus for future research.

One key insight from this report is that the estimates could be two times lower for these sectors if proactive adaptation investments are made on a strategically timed and location-specific basis. Those results for alternative adaptation responses are presented in the buildings and transportation chapters, in more detail.

The large extreme-temperature mortality impact estimate in the human health and safety sector reflects only current and historically applied response measures. Additional investments in adaptation such as increased air conditioning and reduction of heat island effects could substantially reduce those estimated impacts, although the impact of those adaptations cannot yet be quantified reliably.

One consequence of the economic impact of climate change is a ripple effect on New York State government expenditures and revenues, details of which are presented in Appendix C. The modeling of the fiscal impacts on state-level government is at the forefront of climate impact modeling; due to the developing nature of this body of work, it has not been included in the aggregated work in the rest of this report. However, it represents an important step forward in the understanding of the economic impacts of climate change at a State level. The results of that research anticipate that, on net, climate change is expected to adversely affect New York State's fiscal position. Appendix C provides more details.

3 Important Trends in Emerging Literature

There are three important trends emerging in current research on economic impacts of climate change in the U.S. that should be considered in identifying needs and new directions for impact assessment in New York State. These trends can be expected to generate new insights, literature, data, and models that could represent opportunities to improve future analyses of the economic impact of climate change for New York State. The three trends are:

1. **Addressing Cross-Sectoral Impacts**

In the past, including this study, economic impact estimates have focused on sector-level implications (see, e.g., [EPA 2017](#) and the damage function components of Hsiang et al. 2017). Cross-sectoral analyses have been rare, although in this study, the agricultural analyses do incorporate future changes in the projected availability of irrigation water for crops. Overall, water resources is a good example of sector with a cross-sectoral implications, as it affects agriculture, hydropower production and cooling water availability in the energy sector, and even recreation (e.g., boating and freshwater fishing). While current literature provides a limited basis on which to assess interactions across risk categories, some impact modeling groups are beginning to better integrate cross-sectoral impacts. For example, the Program on Coupled Human and Earth Systems (PCHES), directed through Penn State University and funded by the U.S. Department of Energy (DOE), focuses on multi-sector, multi-scale interactions among land, energy, water and infrastructure systems (with a special focus on energy systems) as they are affected by climate changes.

2. **Quantifying the Impact of Adaptation in the Health Sector on Extreme Heat Mortality**

The magnitude of potential mortality risk associated with extreme heat globally, and as the largest component of the overall aggregate economic impact in this study, under current adaptation response efforts has spurred an emerging wave of research to better understand adaptation in the health/climate impacts sector more broadly. The recent global-scale Carleton et al. (2022) extreme-heat mortality study incorporates consideration of adaptation costs and benefits, and finds that the global economic impacts of extreme heat remain very large, but the global-scale and aggregate approach to estimating unobserved adaptation costs does not necessarily reflect adaptation capacity and readiness in New York State (Carleton et al.).

At the same time, the New York State Energy Research and Development Authority (NYSERDA) has recently funded work that clarifies the complex interaction of heat waves, power outages, and health, suggesting that barriers exist to realizing the full potential of air conditioning to reduce extreme heat health risk. Other recent NYSERDA work has focused on establishing equitable access to cooling in New York City (see, e.g., Dominianni 2018, NYSERDA 2021). Combining the conceptual advances of Carleton et al. (2022) with these New York State–specific research lines could yield new insights on the potential for adaptation action to reduce the dangerous potential for extreme heat to increase mortality risk.

3. **Differentiating Effects on Sensitive Subpopulations**

There is increasing interest in understanding the distribution of the risks of climate change among potentially sensitive groups of interest—these can include the elderly, children, pregnant women, and environmental justice (EJ) communities (see, e.g., EPA 2021, 2023). There remain important technical and data challenges in adapting analyses such as those in this study to present reliable distributional impacts. For example, in the health sector, the potential for disproportionate impacts involves consideration of at least three elements:

- Differential exposure: effectively mapping the impacts of climate, usually at fine scale, with maps of the residences of populations of interest
- Differential baseline health state: Which in the case of EJ populations may be related to current and past patterns of differential risk, sometimes connected to past redlining practices or inequities in past and present healthcare delivery
- Differential sensitivity, which is particularly important for age-differentiated groups (e.g., the physiology of children and the elderly alters and usually amplifies the response of individuals in these groups to extreme heat). Outside the health sector, other challenges remain. For example, it can be difficult to determine the incidence of impacts in the transportation sector without detailed information on the populations engaging in trips via the affected transportation mode (e.g., cars, public transportation) except at coarse spatial scales that mismatch with the incidence of impacts. Finally, a key challenge in these analyses is discerning why a particular exposure may be found to be disproportionate, an important question to connect results to policy action. Emerging best practices point to early and continuing engagement of the affected communities in these types of analyses as critical to generating more effective, accurate, and meaningful results.

4 **Focus Areas for Future Research**

Consideration of the results and key findings of this study, in the context of emerging trends in climate impacts research, yields the following three recommended focus areas for future research:

1. Fill important gaps in sectoral and impact coverage
2. Examine cross-sectoral and cascading impacts
3. Incorporate more advanced and New York State–specific adaptation analysis in the health sector and improve spatial disaggregation of those results

4.1 Fill Important Gaps in Sectoral and Impacts Coverage

An immediate need identified in this study is to support research to better characterize and quantify emerging impacts that could be important to New York State residents. This section discusses the following five specific impact categories.

4.1.1 Improve Comprehensiveness of Coastal Flood Impact Category

This report, coastal flooding was considered as part of the buildings sector, primarily because most research focuses on structure and property damage as the largest and most important component of coastal flood risk. In New York State, however, healthy beaches and coastal dunes play a dual role in limiting economic damage from coastal flooding, providing protection for coastal property and preserving beach width to support recreational activities. The prevalence of beach nourishment as a coastal resource management strategy in the State requires a more nuanced treatment of impacts and adaptation strategies that is not currently part of most coastal risk models.

In addition, there are often tradeoffs between preserving direct human use of areas in the coastal zone (through buildings and recreation) and implications for ecosystems (beach nourishment and hard structures can impair or endanger coastal wetland and dune ecosystems). The implications for New York State, which combines relatively high population density in the coastal zone and extensive and extensively used beaches on Long Island and in and around New York City, make this a high priority for new research to better inform coastal adaptation planning.

In addition, the current coastal flood risk assessment excludes impacts on ports, which represent a gateway for economic activity. Some new work exists on impacts to ports which excludes adaptation, however, and may substantially overstate the impacts, as adapting ports is generally considered quite cost-effective (see Van Houtven et al. 2022, Hanson and Nicholls 2020).

4.1.2 Improve Coverage and Methodologies for Quantifying Impacts in the Agriculture Sector

The agriculture sector contributes \$3.3 billion annually to New York's gross state product. This study estimated that roughly \$150 million of that total is at risk to climate impacts by the 2050s in the dairy sector, and another \$150 million annually could accrue as benefits of climate change in the crop sector. Within the dairy sector, however, the method applied does not consider future price impacts of climate change on primary dairy products and does not consider downstream impacts to processed dairy products

(e.g., yogurt). As a result, the estimate is incomplete and likely understates the impact on agriculture. Other omissions to the quantified impacts in this sector include impacts on apple production, which are sensitive to temperature and extreme storms and are a large component of overall New York State's agricultural production; and impacts to livestock and poultry, also sensitive to temperature and a large part of New York State's agricultural sector.

4.1.3 Assess Air Pollution Exposure Impact of Increases in Wildfire Frequency in Quebec, Canada

Events in the spring and summer of 2023, when more than 32 million acres of forest burned in eastern Canada, led to dangerous levels of air pollution in New York State, especially during the first half of July 2023. Research investigating a prior 2002 event of somewhat smaller magnitude indicated immediate health effects on vulnerable populations, and future research may uncover long-term effects of the July 2023 event that currently are not known. Nonetheless, methods and data exist to estimate the increased risk of climate change on Quebec wildfires and their impact on air quality and health in New York State and could be an important impact to add for future analyses.¹

4.1.4 Consider Effects of Climate Change on Groundwater Recharge

In some locations, long-term trends attributable to climate change have shown that groundwater resources are being depleted (see Kuang et al. 2024). While this study considers the future availability of surface water, the availability of groundwater for municipal water use in particular could be critically important to New York State residents.

¹ The role of climate change in fire disturbance frequency and intensity in Quebec forests has been studied for over a decade ([van Bellen et al. 2010](#)), but the focus has been on forest productivity and carbon storage potential rather than air quality. Some more recent research suggests that climate change could substantially increase Quebec fire risk, particularly in high GHG emissions scenarios, but those studies do not consider air quality implications, nor do they consider the joint likelihood of specific atmospheric conditions that could replicate the June 2023 event (or subsequent ongoing events) ([Ameray et al. 2023](#), [Boulanger et al. 2021](#), [Gadreau et al. 2016](#)). Coupling these studies with a chemical transport model and health impacts tool (such as EPA's BenMAP tool) could yield health impacts results for New York State residents.

4.1.5 Broaden the Ecosystem Service Sector Coverage

Potentially important climate impacts on the “blue economy,” such as ocean acidification impacts on shellfish and other aspects of marine ecosystems, as well as ecosystem carbon sequestration services in both terrestrial and marine ecosystems, could have substantial economic consequences for New York State. These are active areas of ongoing research, so methods and data may be sufficient to generate a quantitative estimate of economic impact in future analyses.

Other potentially important categories of impacts that may be amenable to quantification and monetization include: climate impacts to natural pollinators, which might be valued using the costs to replace this ecosystem service with pollination by hand; the value of water purification in the Croton and Catskill/Delaware water systems (which supply New York City with drinking water and may be threatened by climate changes on forest and soil health in these regions); and the value of coastal wetlands in flood protection.²

4.2 Examine Cross-Sectoral and Cascading Impacts

As noted in the previous section, there is increasing attention among the climate impacts research community in understanding cross sectoral and cascading impacts, which in some applications involves use of macro-economic modeling. Two important research threads to continue to monitor include a new effort by the National Academies of Science, Engineering, and Medicine (NASEM) to explore uses of these tools (which could yield a summary report with recommendations for best practices in late 2024 or 2025) and the previously mentioned PCHES collaborative coordinated through Penn State University.

These efforts are different from efforts to understand the macroeconomic effects of GHG emissions reduction efforts and decarbonization (see, e.g., Yuan et al. 2029) because they explicitly focus on incorporating climate impacts on macroeconomic metrics such as gross domestic product (GDP), employment, and prices. a macroeconomic model of the New York State economy could provide insights on the impact of climate risks on GSP and incomes, employment, other states or countries that may “spill over” to affect New York State residents or resources, and perhaps effects on climate-induced population migration within, into, or out of the State.

² See, e.g., [Fant et al. 2022](#), on valuation of long-term climate-induced changes in coastal wetland extent and type, including loss of storm protection and carbon sequestration ecosystem services.

4.3 Incorporate More Advanced and New York State-Specific Adaptation Analysis in the Health Sector and Improve Spatial Disaggregation of those Results

The large magnitude of impacts in the health sector estimated in this report provides a strong rationale to further explore the potential for New York State–specific, cost-effective adaptation measures and their efficacy to mitigate extreme temperature mortality. A focus on adaptation potential could also provide important insights to support environmental justice implications—as prior work by NYSERDA notes that access to air conditioning during heat waves, for example, is not currently equitably distributed among New York State residents.

In addition, as noted earlier, quantifying impacts to vulnerable communities relies in part on improving the spatial resolution of the impact estimation tools and data. Consideration of urban heat island effects, for example, could be important both for improving the accuracy of impact estimates and providing a stronger basis for estimating disproportionately high effects among EJ populations.

5 References

- Ameray, A., X. Cavard, and Y. Bergeron. 2023. “Climate Change May Increase Quebec Boreal Forest Productivity in High Latitudes by Shifting Its Current Composition.” *Frontiers in Forests and Global Change* 6 (February 9).
- Boulanger, Y., J. Pascual, M. Bouchard, L. D’Orangeville, C. Périé, and M.P. Girardin. 2021. “Multi-model Projections of Tree Species Performance in Quebec, Canada, under Future Climate Change.” *Global Change Biology* (December).
- Carleton et al. 2022. “Valuing the Global Mortality Consequences of Climate Change Accounting for Adaptation Costs and Benefits.” *Quarterly Journal of Economics* 137 (4): 2037–105.
- Dominianni, C., K. Lane, B.K. Acharya, K. Qin, S. Grady, and T. Matte. 2018. “Health Impacts of Citywide and Localized Power Outages in New York City.” *Environmental Health Perspectives* 126 (6): 067003, <https://doi.org/10.1289/EHP2154>.
- Fant, C., L.E. Gentile, N. Herold, H. Kunkle, Z. Kerrich, J. Neumann, J. Martinich. 2022. “Valuation of Long-term Coastal Wetland Changes in the U.S.” *Ocean & Coastal Management* 226 (July 1), 106248.
- Gadreau, J., L. Perez, and P. Drapeau. 2016. “BorealFireSim: A GIS-based Cellular Automata Model of Wildfires for the Boreal Forest of Quebec in a Climate Change Paradigm.” *Ecological Informatics* 32, 12–27.

- Hanson, S. E., and R.J. Nicholls. 2020. “Demand for ports to 2050: Climate Policy, Growing Trade and the Impacts of Sea-Level Rise. *Earth’s Future* 8, e2020EF001543.
<https://doi.org/10.1029/2020EF001543>
- Hsiang, S., D. Jina, A. Rising, M.C. Delgado, S. Mohan, D. Rasmussen, R. Muir-Wood, P. Wilson, M. Oppenheimer, K. Larsen, and T. Houser. 2017. “Estimating Economic Damage from Climate Change in the United States.” *Science* 356 (6345): 1362–69.
- Kuang, X., J. Liu, B.R. Scanlon, J.J. Jiao, S. Jasechko, M. Lancia, B.K. Biskaborn, Y. Wada, H. Li, Z. Zeng, Z. Guo, Y. Yao. T. Gleeson, J.-P. Nicot, X. Luo, Y. Zou, and C. Zheng. 2024. “The Changing Nature of Groundwater in the Global Water Cycle.” *Science* 383 (6686): 962.
- Massachusetts Institute of Technology (MIT), Center for Sustainability Science and Strategy. N.d. “U.S. Regional Energy Policy (USREP) Project.” <https://cs3.mit.edu/research/research-projects/us-regional-energy-model>
- New York State Energy Research and Development Authority (NYSERDA). 2021. “Climate Change: Equitable Access to Cooling in New York City,” NYSERDA Report Number 21-27. Prepared by Guidehouse, Inc., Burlington, MA. nyserdera.ny.gov/publications
- U.S. Environmental Protection Agency (EPA). 2017. *Multi-Model Framework for Quantitative Sectoral Impacts Analysis: A Technical Report for the Fourth National Climate Assessment*. Washington, DC: EPA, EPA 430-R-17-001.
- U.S. Environmental Protection Agency (EPA). 2021. “Climate Change and Social Vulnerability in the United States: A Focus on Six Impacts.” Washington, DC: EPA, EPA 430-R-21-003.
- U.S. Environmental Protection Agency (EPA). 2023. “Climate Change and Children’s Health and Well-Being in the United States.” Washington, DC: EPA, EPA 430-R-23-001.
- van Bellen, S., M. Garneau, and Y. Bergeron. 2010. “Impact of Climate Change on Forest Fire Severity and Consequences for Carbon Stocks in Boreal Forest Stands of Quebec, Canada: a Synthesis.” *Fire Ecology* 6, 16–44.
- Van Houtven, A, 2022. *Act Now or Pay Later: The Costs of Climate Inaction for Ports and Shipping*. March. Environmental Defense Fund.
- Yuan, M., S. Rausch, J. Caron, S. Paltsev, and J. Reilly. 2019. “The MIT U.S. Regional Energy Policy (USREP) Model: The Base Model and Revisions.” *Joint Program Technical Note*, August, 24 p.
<https://cs3.mit.edu/publication/17331>

NYSERDA, a public benefit corporation, offers objective information and analysis, innovative programs, technical expertise, and support to help New Yorkers increase energy efficiency, save money, use renewable energy, and reduce reliance on fossil fuels. NYSERDA professionals work to protect the environment and create clean-energy jobs. NYSERDA has been developing partnerships to advance innovative energy solutions in New York State since 1975.

To learn more about NYSERDA's programs and funding opportunities, visit nyserda.ny.gov or follow us on X, Facebook, YouTube, or Instagram.

**New York State
Energy Research and
Development Authority**

17 Columbia Circle
Albany, NY 12203-6399

toll free: 866-NYSERDA
local: 518-862-1090
fax: 518-862-1091

info@nyserda.ny.gov
nyserda.ny.gov



NYSERDA
New York State Energy Research
and Development Authority

State of New York

Kathy Hochul, Governor

New York State Energy Research and Development Authority

Audrey Zibelman, Chair | Doreen M. Harris, President and CEO