Curriculum Vitae
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Steven K. Rose, Ph.D.

Principal Research Economist, Energy Systems and Climate Analysis Research, EPRI
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Paper links and citations: Google Scholar

Education

Ph.D., Economics, Cornell University, 2000
- Major Field: Environmental and Natural Resource Economics
- Minor Fields: Applied econometrics and mathematical programming, microeconomics, experimental economics, and development economics

B.A., Economics with Mathematical Emphasis, honors distinction, Univ. of Wisconsin-Madison, 1989
- Minor Fields: Mathematics, econometrics, computer science, liberal arts studies

Current and recent positions

Principal Research Economist, Energy Systems and Climate Analysis Research Group, EPRI, Oct 2008-present.

Advisory Committee, Earth & Biological Sciences Directorate, Pacific Northwest National Laboratory, 2022-present.

Task Force Member, The Scenario Model Intercomparison Project (ScenarioMIP) for CMIP7 (Coupled Model Intercomparison Project Phase 7), 2023 – present.

Scientific Steering Group, U.S. Carbon Cycle Science Program, 2011-present.

Scientific Steering Committee, Integrated Assessment Modeling Consortium (IAMC), 2009-present.

Co-Chair, Stanford-EPRI Public Educational Webcast Series: Options for Estimating the Global Economic Impacts of Climate Change and the Social Cost of Carbon Module-by-Module, 2024-present.

Additional professional responsibilities and honors

Appointed Committee Member, Committee on Assessing Approaches to Updating the Social Cost of Carbon, The National Academies of Sciences, Engineering, and Medicine, 2015-2017.

Advisory Group, Advisory Group for Scenario Guidance, Task Force on Climate-Related Financial Disclosures (TCFD), 2019-2020.

Scientific Steering Group, U.S. Carbon Cycle Science Program, 2011 – present.

Scientific Steering Committee, Integrated Assessment Modeling Consortium (IAMC), 2009 – present.

Member, Scientific Working Group on Scenarios for Climate-related Financial Analysis, Integrated Assessment Modeling Consortium (IAMC).

Lead Author, Intergovernmental Panel on Climate Change (IPCC), Sixth Climate Change Assessment
- Working Group II on Impacts, Adaptation, and Vulnerability – Climate Resilient Development (Ch 18), Aggregate Economic Climate Impacts, Climate Scenarios, Common Climate Dimensions, Summary for Policy Makers
- Working Group III on Mitigation of Climate Change – Economic benefits of mitigation
- Working Group I on The Physical Science Basis – New Estimates of Global Warming to Date, and Key Implications
- Cross-Working Group Climate and Socioeconomic Scenarios Team – lead for Working Group II

Contributing Author, IPCC, Sixth Climate Change Assessment
- Working Group III on Mitigation of Climate Change – Long run pathways (Ch 3)
- Working Group I on The Physical Science Basis – Changing State of the Climate System (Ch 2)

Committee Member, Committee on Assessing Approaches to Updating the Social Cost of Carbon, The National Academies of Sciences, Engineering, and Medicine, 2015 – 2017.

Panel Member, EPA's Science Advisory Board Biogenic Carbon Emissions Panel, reviewed EPA's initial and revised biogenic carbon emissions accounting frameworks, 2011 – 2012 and 2014 – 2018.

Co-winner 2008 Nobel Peace Prize, IPCC Lead Author

Lead Author, IPCC Fifth and Fourth Climate Change Assessment Reports of Working Group III (Mitigation of Climate Change) – long-run socioeconomic and emissions scenarios and mitigation, bioenergy, and land use.

Contributing Author, IPCC 4th and 5th Climate Change Assessments of Working Group III.

Lead Author, Climate Change Impacts in the United States: The Third National Climate Assessment.

Publications

Morris, J*, Rose, SK*, Reilly, J, A Gurgel, S Paltsev, A Schlosser, 2025. Reconciling widely varying estimates of the global economic impacts from climate change. *Nature Climate Change* 15: 124–127. https://doi.org/10.1038/s41558-024-02232-7.

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Rose, SK, C Octaviano, D Livengood, F Ralston Fonseca, 2025. SMARTargets: A methodology for grounded and actionable climate targets aligned with global goals. EPRI: Palo Alto, CA. Public comment draft, July.

van Vuuren, D, B O'Neill, C Tebaldi, L Chini, P Friedlingstein, T Hasegawa, K Riahi, B Sanderson, B Govindasamy, N Bauer, V Eyring, C Fall, K Frieler, M Gidden, L Gohar, A Jones, A King, R Knutti, E Kriegler, P Lawrence, C Lennard, J Lowe, C Mathison, S Mehmood, L Prado, Q Zhang, S Rose, A Ruane, C-F Schleussner, R Seferian, J Sillmann, C Smith, A Sörensson, S Panickal, K Tachiiri, N Vaughan, S Vishwanathan, T Yokohata, T Ziehn, in review. *The Scenario Model Intercomparison Project for CMIP7 (ScenarioMIP-CMIP7)*. EGUsphere [preprint], https://doi.org/10.5194/egusphere-2024-3765.

Rose, SK, J Morris, A Gurgel, forthcoming. *Assessing global and sub-global socioeconomic transition uncertainty for climate management and risk analyses*.

Rose, SK, forthcoming. *Assessment of new global emissions scenarios for company low-carbon transition risk and target setting applications*. EPRI, Palo Alto, CA. #3002028180.

Bistline, J, M Browning, J DeAngelo, D Huppmann, R Jones, J McFarland, A Molar-Cruz, S Rose, SJ Davis, 2024. Uses and Limits of National Decarbonization Scenarios to Inform Net-Zero Transitions. Joule 8(10): 2721-2726. https://doi.org/10.1016/j.joule.2024.09.005.

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Mignone, BK, L Clarke, JA Edmonds, A Gurgel, HJ Herzog, JX Johnson, DS Mallapragada, H McJeon, J Morris, PR O'Rourke, S Paltsev, SK Rose, DC Steinberg, A Venkatesh, 2024. Drivers and implications of alternative routes to fuels decarbonization in net-zero energy systems, *Nature Communications* 15, 3938 (2024). https://doi.org/10.1038/s41467-024-47059-0.

Smith, E, S Rose, L DiSera, L Fischer, 2024. Selecting Climate Models and Metrics for Localized Climate Change Assessments. EPRI: Palo Alto, CA. #3002031387.

Neary, B, E Smith, S Rose, 2025. An Approach for Characterizing Third-Party Physical Climate Risk Assessment Frameworks for Utility Applications. EPRI: Palo Alto, CA. #3002031389.

Rose, S, 2024. The U.S. Securities and Exchange Commission (SEC) 2024 Climate Risk Disclosure Rule: Technical perspectives to inform potential future compliance, analyses, and dialogue. EPRI: Palo Alto, CA: #3002031386.

Pirani, A, JS Fuglestvedt, E Byers, B O'Neill, K Riahi, J-Y Lee, J Marotzke, S Rose, R Schaeffer, C Tebaldi, 2024. Scenarios in IPCC assessments: lessons from AR6 and opportunities for AR7. *npj Clim. Action* 3, 1 (2024). https://doi.org/10.1038/s44168-023-00082-1.

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Roney, C, S Rose, S Swanson, 2023. *Survey of Potential Renewable Fuels Conversion Technologies for Decarbonizing the Economy*. EPRI, Palo Alto, CA. #3002027972.

Smith, E, S Rose, F Chiang, D Diaz, L Fischer, 2023. *Developing Local Climate Change Information: Steps and Illustrative Analysis*. EPRI, Palo Alto, CA: #3002026639.

Blanford, G, N Kern, S Rose, N Johnson, C Roney, S Goteti, J Bistline, D Young, C Trueblood, T Leljedal, D Wissmiller, A Nasta, S Siddique, F de la Chesnaye, D McCollum, 2022. *LCRI Net-Zero 2050: U.S. Economy-Wide Deep Decarbonization Scenario Analysis*. EPRI, Palo Alto, CA: 2022. #3002024993, https://lcri-netzero.epri.com/.

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Muratori M, Bauer N, Rose SK, Wise M, Daioglou V, Cui Y, Kato E, Gidden M, Strefler J, Fujimori S, Sands RD, van Vuuren DP, Weyant J, 2020. EMF-33 insights on bioenergy with carbon capture and storage (BECCS). *Climatic Change* 163, 1621–1637.

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Rose, S.K., R. Richels, G. Blanford, T. Rutherford, 2017. The Paris Agreement and Next Steps in Limiting Global Warming. *Climatic Change* 142(1), 255-270.

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Lead Author, Long-term mitigation (Chapter 3), Climate Change 2007. Fourth Assessment Report, Mitigation Working Group (Working Group III), Intergovernmental Panel on Climate Change (IPCC), www.ipcc.ch.

Contributing Author, 2007. Agriculture (Chapter 8), Climate Change 2007. Fourth Assessment Report, Mitigation Working Group (Working Group III), Intergovernmental Panel on Climate Change (IPCC), www.ipcc.ch.

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Rose, Steven K., 2003. Identifying and Assessing Training-Range Encroachment and Resources, CNA Research Memorandum D0007497.A2, January.

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Rose, Steven K. and Svetlana Volskaya-Winbourne, 1998. "Ukrainian Public Timber Allocation and Forest Management." Report prepared for USAID project Environmentally Sound Business Development for Ukraine, contract no. AEP-5470-I-00-5034-00, March.

Other select work in progress

Rose, SK, B McCarl, G Latta, *US agriculture and forestry biomass feedstock supplies and environmental and social implications*.

Rose, SK, *Unpacking discounting of climate damages: a sequence of questions and science-based answers*.

Rose, SK, J Bistline, *Proper (and improper) use of the social cost of carbon and other greenhouse gases*.

Select presentations

"Reconciling widely varying estimates of the global economic impacts from climate change," GLASSNET-GTAP Virtual Workshop, July 23, 2025.

"Navigating deep decarbonization, reliability and affordability in the electric power sector," Edison International Sustainability Seminar, July 23, 2025.

"SMARTargets: A Methodology for Grounded and Actionable Climate Targets Aligned with Global Goals," Draft Methodology Public Comment Process Launch Webcast, July 8, 2025.

"Goals and roles of model development?" Energy transitions policy and modeling at a crossroads: New communities, approaches, and scenarios, June 17, 2025.

"Discounting the Economic Impacts of Climate Change – Options and Viable Choices," Stanford-EPRI Public Educational Webcast Series, May 16, 2025.

"Fueling the Future: Potential Transitions, Opportunities, and Risks for Global and U.S. Energy and Companies," MEA Energy Association Executive Forum, March 26, 2025.

"Wildly divergent estimates of the global economic impacts of climate change and the need for reconciliation," International Monetary Fund (IMF) Conference on Revisiting Climate Damages, December 11, 2024.

"Electric sector low carbon transition uncertainty and risk: a survey of issues," Midcontinent Independent System Operator, May 10, 2024.

"What are the consequences of meeting and not-meeting the Paris goals – for climates, economies, and adaptation," Pathways to Sustainable Development: Scenarios for Energy Transition Acceleration, Norwegian University of Science and Technology, March 14, 2024.

"Differences in Regional Decarbonization Opportunities, Uncertainties, and Risks: A P201E 2023 Publication Relevant to Climate Risk and Target Setting," EPRI Energy System and Climate Analysis Webcast, March 7, 2024.

"Challenges and Insights for Mexico Climate Scenarios," Sustainable Finance Committee Conference: Towards the Implementation of Climate Scenarios in Mexico, Banco de Mexico, October 30-31, 2023.

"Options and challenges for estimating the global economic impacts to a future climate," Stanford-EPRI Public Educational Webcast, February 26, 2024.

"Uncertainty in future global societies and evaluating projections options," Stanford-EPRI Public Educational Webcast Series, January 11, 2024.

"Assessing and Planning for Low-carbon Futures," AEP Enterprise Sustainability Council, October 12, 2023.

"Updating and Applying the Social Cost of Carbon, Methane, and Other Greenhouse Gases," Salt River Project, October 4, 2023.

"Company Greenhouse Gas Emissions Targets Based on Sound Science," EPRI Board of Directors, August 2023.

"Climate Change Scenario Analysis: Arizona Low-Carbon Transition Risk Assessment Update," Arizona Public Service Resource Planning Advisory Council, July 19, 2023.

"Planning for and Managing Future Climate Change," Climate Change & Implications for Defense and Security (CCIDS), National Defense University, July 10, 2023 and May 8, 2023.
"Recommendations for creating scientifically reliable climate and net benefits estimates," EPRI, July 7, 2023.
"Estimating the global economic impacts response to a future climate," Challenges and opportunities for estimating the global economic impacts of climate change, Snowmass, CO, June 23, 2023.
"Discounting future economic impacts," Challenges and opportunities for estimating the global economic impacts of climate change, Snowmass, CO, June 23, 2023.
"Global socioeconomic and emissions projections," Challenges and opportunities for estimating the global economic impacts of climate change, Snowmass, CO, June 23, 2023.
"EPA's draft new social cost of greenhouse gases estimates (SC-GHGs)," Edison Electric Institute Environmental Council Workshop, May 25, 2023.
"Understanding and using the social cost of carbon and discounting climate benefits," CIBO Policies and Technical Issues Conference, May 16, 2023.
"Technical insights for company low-carbon transition risk assessments," Fitch Ratings, May 9, 2023.
"Preparing for the Unprecedented As We Transition to Carbon-Free Power Generation," AMS Washington Forum, Washington, DC, April 19, 2023.
"Planning for and Managing Future Climate Change," Sierra Club, April 12, 2023.
"Potential Updates to the Social Costs of Carbon and Other Greenhouse Gases (SC-GHGs): Technical observations regarding EPA's draft methodology and use of estimates," EPRI Public Educational Webcast Series, March 23, 2023.
"Climate Change Scenario Analysis: Update and Climate Change Results," January 18, 2023.
"Planning for Global Climate Change," Southwest Water Resiliency Conference, Phoenix, AZ, October 27, 2022.
"Pathways to net zero carbon," International Climate Symposium, Dickinson College, October 24, 2022.
"Grounding climate risk decisions: risk assessment scientific foundation and guidance," UNDP, October 14, 2022.
"From Global Climate Ambition and Cooperation to Corporate Goals and Offsets Potential," Exploring the Role of GHG Emissions Offsets to Achieve Corporate Decarbonization Goals Workshop, September 13, 2022.
"Grounding climate risk decisions: Physical climate risk assessment scientific foundation and guidance," Extreme Weather and our Changing Climate, August 8, 2022.
"Unpacking discounting of climate damages: a sequence of questions and science-based answers," Discounting and the Social Cost of Carbon, EPRI Social Cost of Social Cost of Carbon and Other Greenhouse Gases Educational Webcast Series, July 21, 2022.
"Quantifying uncertainty in global and sub-global socioeconomic and greenhouse gas emissions futures," Scenarios Forum 2022, Laxenburg, Austria, June 22, 2022.
"Enhancing grid & community resilience: adapting to climate change and electrification," Michigan Public Utility Commission, May 25, 2022.
"Company Physical Climate Risk Assessment," EPRI-Enel Foundation Workshop: Climate Resilience Drivers and Implementation, May 18, 2022.
"Framing the Concept of Physical Climate Risk for Companies," EPRI 25th Annual Energy and Climate Seminar, May 12, 2022.
"Climate science and scenarios – introduction and framing," EPRI-Enel Foundation Climatize Workshop, March 2, 2022.
"Social cost of greenhouse gas use technical considerations and guidance," Using the Social Cost of Carbon in Policy and Decisions, EPRI Social Cost of Social Cost of Carbon and Other Greenhouse Gases Educational Webcast Series, February 9, 2022.
"Quantifying uncertainty in global and sub-global socioeconomic and greenhouse gas emissions futures," American Geophysical Union, New Orleans, LA, December 13, 2021.

"Climate Adaptation and Resilience: Physical Climate Data & Guidance," EPRI Board of Directors, November 19, 2021.

"The Science of Social Cost Greenhouse Gas Estimation and Use: Issues and Challenges to Address for Scientific Reliability," Understanding the Social Cost of Greenhouse Gas Emissions: Regulatory Implications for the Power Sector, June 29, 2021.

"Scientific challenges in social cost of greenhouse gases estimation and use," The social cost of carbon and other greenhouse gases – getting up to speed and the road ahead, EPRI Social Cost of Social Cost of Carbon and Other Greenhouse Gases Educational Webcast Series, June 24, 2021.

"Developing Scientifically Reliable Social Cost of Greenhouse Gas Estimates and Use," Environmental Law & Finance Series: The Social Cost of Carbon, Environmental Law Institute, June 17, 2021.

"Perspectives on biomass feedstock supply modeling for deep decarbonization," 2021 MIT Energy Initiative Spring Symposium, BECCS: Bioenergy and Carbon Capture and Storage, June 8, 2021.

"Company climate risk decision-making issues and needs," EPRI 24th Annual Energy and Climate Seminar, May 13, 2021.

"Repairing the Social Cost of Carbon Framework: Immediate and One Year Steps for Scientifically Reliable Estimates and Use," EPRI webcast, March 2021.

"Climate Change Resiliency in the Energy Sector," Resilient Engineered Environmental Systems, 70th Environmental Engineering Conference, University of Kansas, April 22, 2020.

"Extreme Weather Events; Electric Sector Adaptation and Resiliency," EPRI Board of Directors, November 20, 2019.

"Trade-Offs in Managing Global Climate Damages," Rapid System Transitions Towards Low GHG Futures Workshop, Snowmass, CO, July 23, 2019.

"Global Climate Damage Risk and Decision-Making," International Energy Workshop, Paris, France, June 3, 2019.

"Global Climate Damage Risk and Decision-Making," American Geophysical Union, Washington, DC, December 11, 2018.

"A Scientific Foundation for Assessing Company Climate Policy (Transition) Risk and Setting Goals," UNEP FI North American Roundtable, September 2019.

"A Scientific Foundation for Assessing Company Climate Policy Risk and Setting Goals," Task Force on Climate-Related Financial Disclosures, June 2019.

"Company climate planning and global scenarios – issues and opportunities," Scenarios Forum, Denver, CO, March 11, 2019.

"Understanding, Improving, and Using the Social Cost of Carbon," Climate Forum on California's Cap-And-Trade Program, September 19, 2018.

"Science Based Targets & Electric Power Sector Decarbonization," MIT XLI Global Change Forum, Boston, MA, March 27, 2018.

"Global Climate Damage Risk and Decision-Making," Integrated Assessment Modeling Consortium Annual Meeting, Recife, Brazil, December 5, 2017.

"Transitioning to Bioenergy for Long-run Climate Management," National Academy of Sciences Carbon Dioxide Removal Committee, Irvine, California, October 23, 2017.

"Guidance for Using the Social Cost of Carbon (SCC)," Pricing Carbon Dialogue, Resources for the Future, Washington, DC, October 3, 2017.

"A Carbon Tax and the Social Cost of Carbon," Harvard Electricity Policy Group, 85th Plenary Session, December 8-9, 2016.

"Limiting Global Warming: Sizing Up the Ambition and Challenge," Rutgers Energy Institute Policy Seminar Series, Rutgers University, September 9, 2016.

"Calculating the Social Cost of Carbon: A Detailed Perspective," Climate Action 2016 Forum, University of Maryland, May 4, 2016.

"Challenges and Opportunities on the Road Forward from the Paris Climate Agreement," ENV-VISION Conference, Washington, DC, May 11, 2016.

"The Paris Climate Agreement – Implementation and States," Women's Council on Energy and the Environment Washington, DC, April 29, 2016.

"Characterizing & Advancing Understanding of the Social Cost of Carbon: Deconstructing the Modeling," Center for Climate and Energy Decision Making, Carnegie Mellon University, February 8, 2016.

"The Road From Paris: Current and Future Pledges, Global Temperatures, and The Potential Value of International Emissions Trading Partnerships," UNFCCC COP-21, Le Bourget, France, December 10, 2015.

"Characterizing & Advancing Understanding of the Social Cost of Carbon," UNFCCC COP-21, Le Bourget, France, December 2, 2015.

"Important Frontiers for Climate Change Economics," Research Frontiers in the Economics of Climate Change, Stanford University, October 10, 2015.

"Understanding Integrated Assessment Modeling of the Social Cost of Carbon," Committee on Assessing Approaches to Updating the Social Cost of Carbon, National Academies of Sciences, Engineering, and Medicine, September 2, 2015.

"Understanding the Social Cost of Carbon: A Technical Assessment—Carbon Cycle and Climate Modeling," US CCSSG 30th Meeting, May 27, 2015.

Select other professional experience

Graduate Faculty, Department of Economics, Purdue University, Special appointment 2008 – 2013.

Senior Research Economist, U.S. EPA, Climate Change Division, Oct 2003 – Oct 2008.

Technical Expert, Member of the U.S. Delegation, IPCC Working Group III, Fourth Assessment Report Approval Meeting, Bangkok, Thailand, 2007.

Expert, U.S. Government Review Panel, IPCC 4th Assessment Report, Working Groups II, III, and Synthesis Report.

Economist, The CNA Corporation, Environment Program, Resource Analysis Division, Jun 2001 – Oct 2003.

Assistant Professor, Joint appointment in Departments of Economics and Environmental Studies, Washington College, Aug 2000 – Jun 2001.

Consulting Economist, The World Bank Group, 1998.

Resource Economist, USAID, 1998.

Journal referee – *Proceedings of the National Academy of Sciences, Nature, Climatic Change, Review of Environmental Economics and Policy, Ecological Economics, Energy Economics, Energy Journal, Environment and Development Economics, Climate Policy, Environmental Research Letters, etc.*