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Implications of Artificial Intelligence-Related Data Center Electricity Use and Emissions

A Workshop

November 12 - 13, 2024



Welcome!

This event is public and is being livestreamed.

AI and Climate Roundtable



This Roundtable will foster ongoing discussions, shared learning, and coordination around emerging issues related to AI and climate change. This Roundtable will explore both how AI can combat climate change and the environmental impact of AI itself, encompassing technical, social, and behavioral dimensions.

Thanks to our sponsors:

- Chan Zuckerberg Initiative (CZI)
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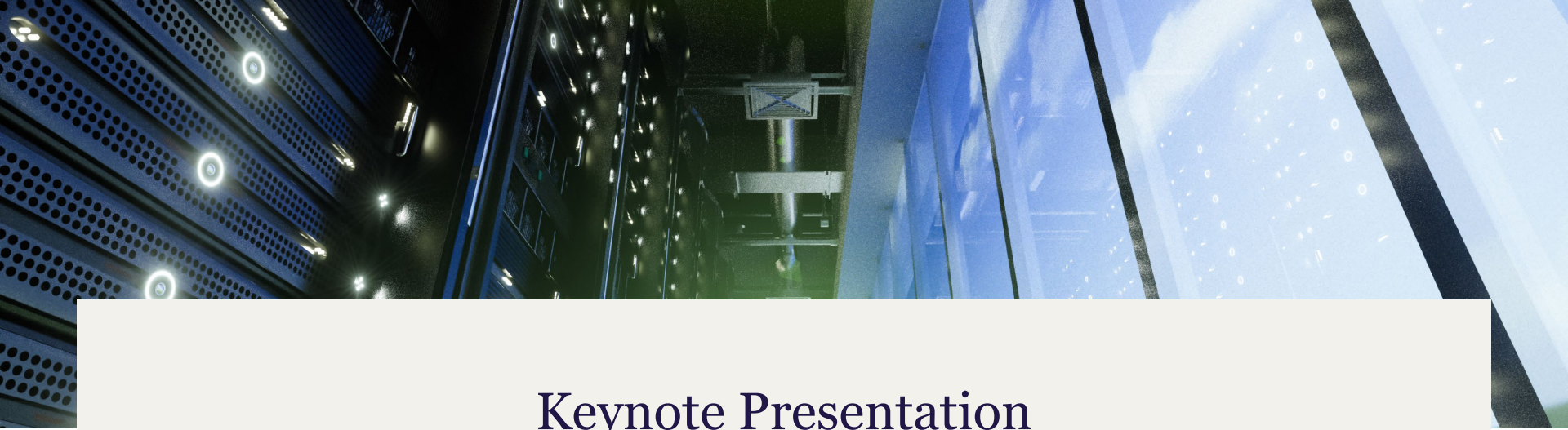
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**[https://www.nationalacademies.org/our-work/
roundtable-on-artificial-intelligence-and-climate-change](https://www.nationalacademies.org/our-work/roundtable-on-artificial-intelligence-and-climate-change)**



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Keynote Presentation

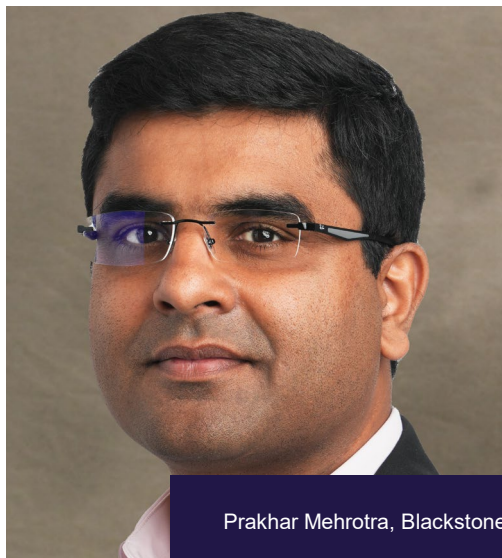
Evolution of Data Center Energy Use

Arman Shehabi, Lawrence Berkeley National
Laboratory

AI Technologies: Trends and Future Use Cases



Benjamin C. Lee, University of
Pennsylvania
Moderator



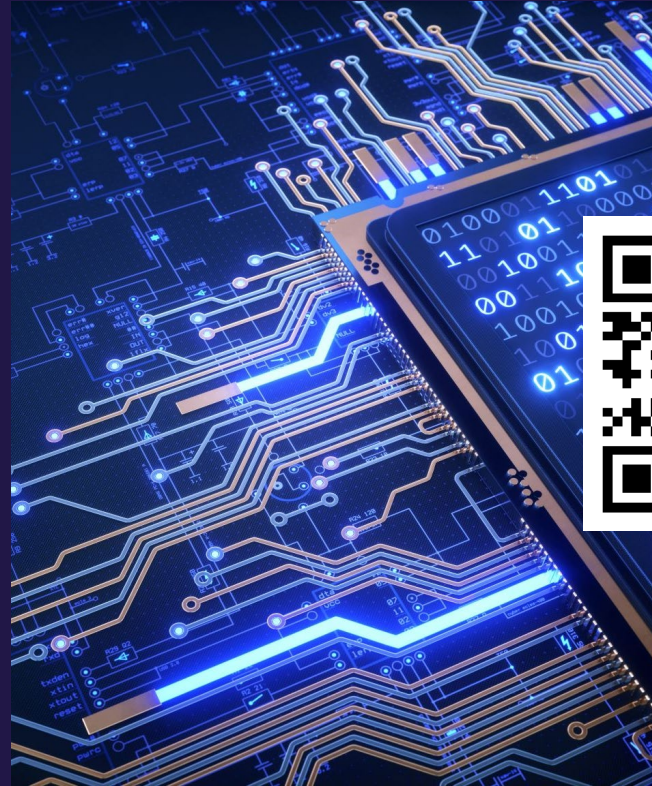
Prakhar Mehrotra, Blackstone



Eric Xing, Carnegie Mellon University

PANEL ONE

AI Technologies: Trends and Future Use Cases



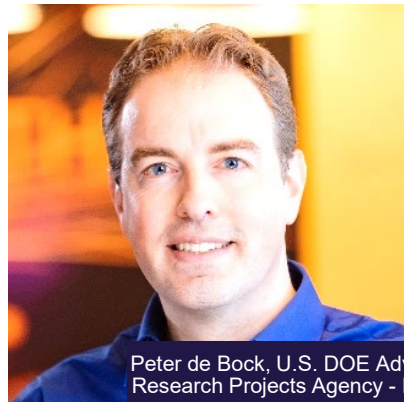
Data Center Infrastructure



Ayse Coskun, Boston University
Moderator



Ricardo Bianchini, Microsoft Azure



Peter de Bock, U.S. DOE Advanced
Research Projects Agency - Energy



Andrew Chien, University of
Chicago



Adam Wierman, Caltech

PANEL TWO

Data Center Infrastructure





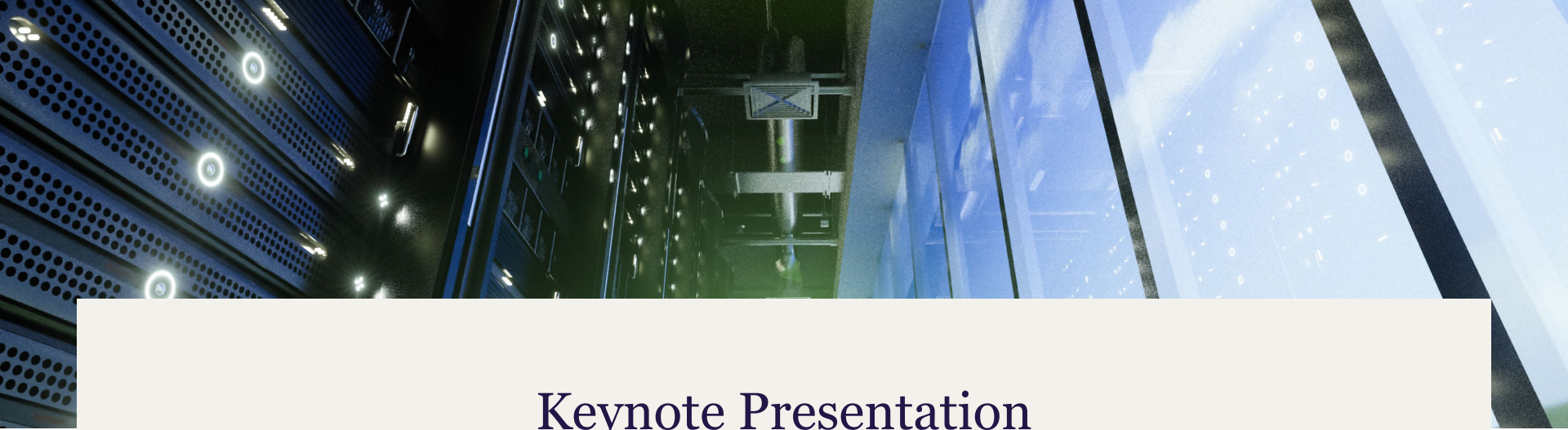
Fireside Chat

System Operator Perspectives on Connecting Grid-Friendly Data Centers

Agee Springer (ERCOT) & Robert Wright (Dominion Energy)



The Workshop will resume at 1:40 PM (ET)



Keynote Presentation

Impact of Data Centers: Projected Power Use and Potential Implications for the Grid

Thomas Wilson, Electric Power Research Institute

Impact of Data Centers on the Grid



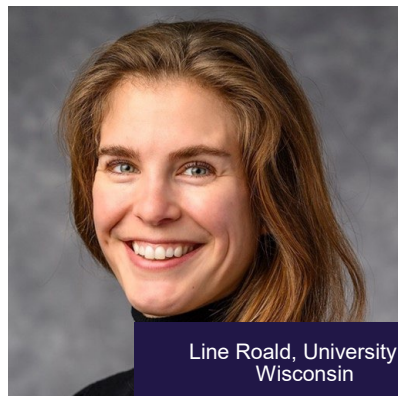
Thomas Wilson, Electric Power
Research Institute
Moderator



Bruce Tsuchida, Brattle



Costa Samaras, Carnegie Mellon
University



Line Roald, University of
Wisconsin



Ravi Jain, Google Tapestry

PANEL THREE

Impact of Data Centers on the Grid



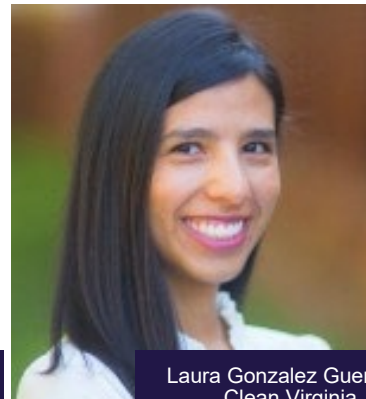
Sustainability Analysis of Data Centers



Eric Masanet, University of
California – Santa Barbara
Moderator



Julie Bolthouse, Piedmont
Environmental Council



Laura Gonzalez Guerrero,
Clean Virginia



Sarah Boyd, Aligned Incentives



Cooper Elsworth, Google



Davide D'Ambrosio,
International Energy Agency

PANEL FOUR

Sustainability Analysis of Data Centers



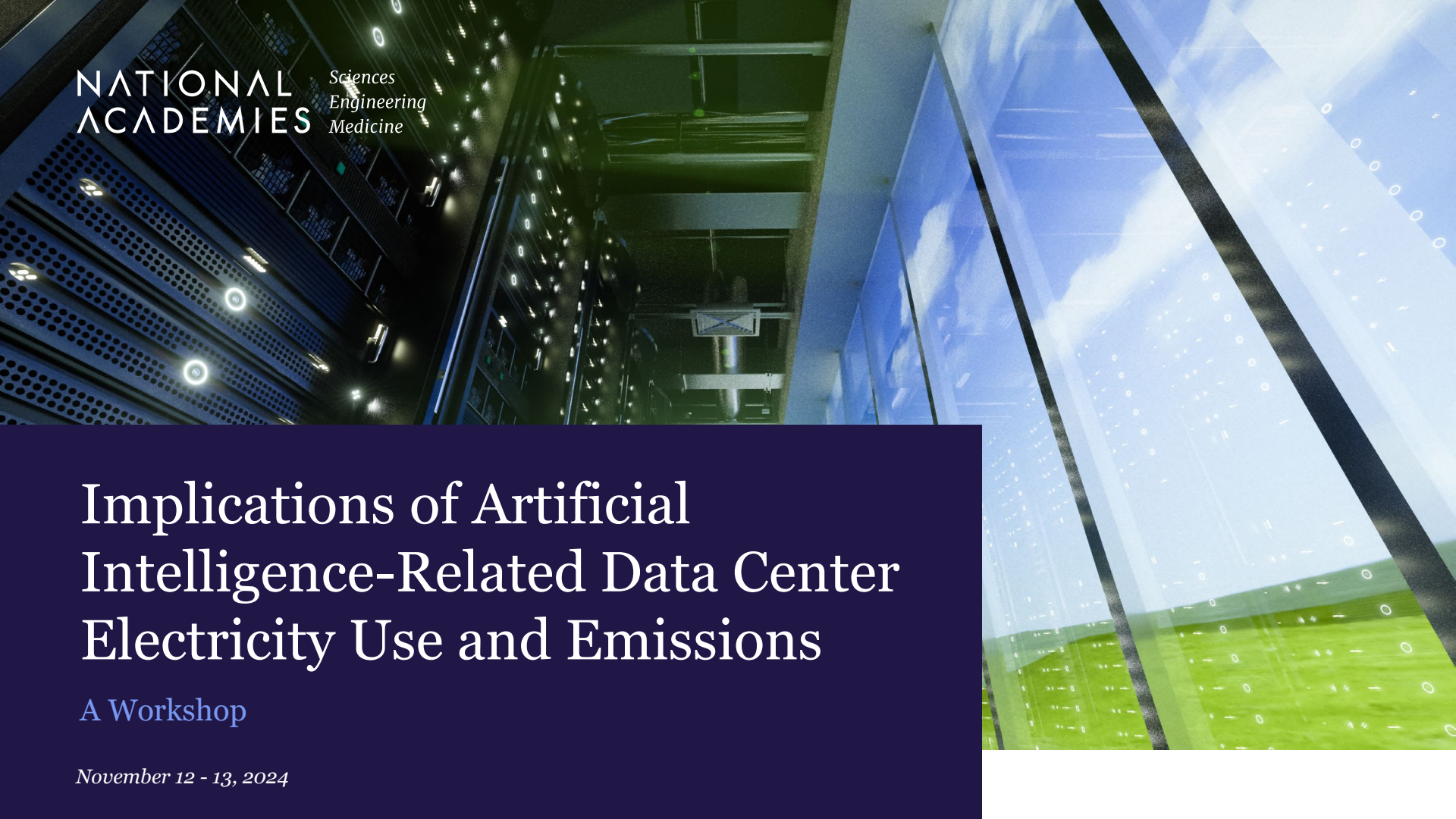


Closing Remarks



Thank you for participating in the National Academies' Implications of Artificial Intelligence-Related Data Center Electricity Use and Emissions workshop!

Day 2 begins tomorrow at 9 AM (ET)



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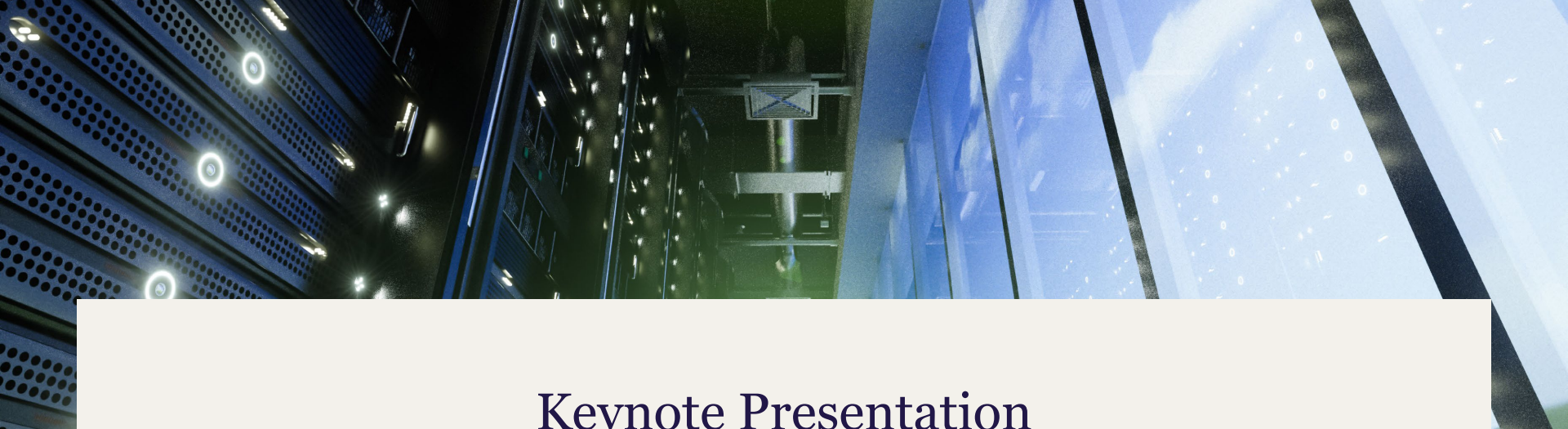
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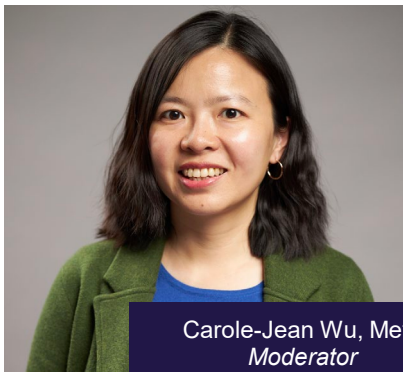


Keynote Presentation

Efficiency Through Technology: Hardware-
Software Interactions

William Dally, NVIDIA

Efficiency through Technology Advancement: Hardware-Software Interactions



Carole-Jean Wu, Meta
Moderator



Milos Popovic, Ayer Labs



Tamar Eilam, International
Business Machines Corporation



Valerie Taylor, Argonne
National Laboratory



Vivienne Sze, Massachusetts
Institute of Technology



William Dally, NVIDIA

PANEL FIVE

Efficiency through Technology Advancement: Hardware-Software Interactions



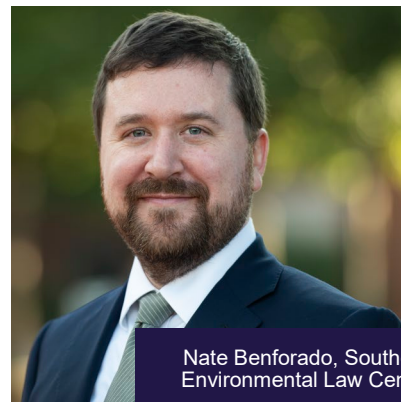
Societal Considerations of Data Center Expansion



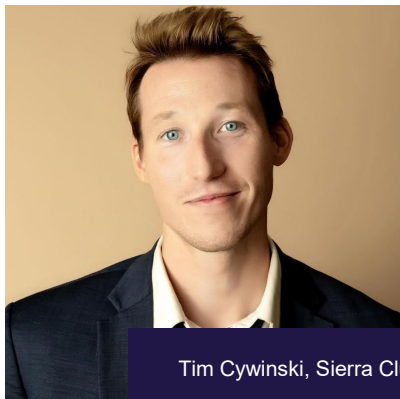
Prashant Shenoy, University of
Massachusetts – Amherst
Moderator



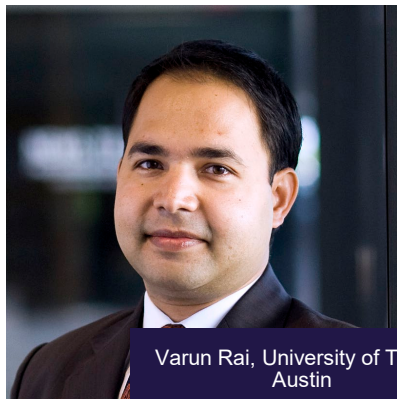
Kelly Sanders, University of
Southern California



Nate Benforado, Southern
Environmental Law Center



Tim Cywinski, Sierra Club



Varun Rai, University of Texas,
Austin

PANEL SIX

Societal Considerations of Data Center Expansion





Closing Remarks

Workshop Planning Committee Members



**Thank you for attending the National Academies'
Implications of Artificial Intelligence-Related
Data Center Electricity Use and Emissions
workshop!**

Please stay in touch.