**Agenda**

7:30 am  Breakfast

8:00 am  Welcome  
Openining Comments  
Hari Osofsky  
Ellen Anderson

8:15 am  The Energy Transition & Storage  
James Tong

9:00 am  The Latest in University Research  
Kristen Nelson, Moderator  
Panelists: Massoud Amin, Ned Mohan, Perry Li, 
Kim Stelson, Don Fosnacht, Eric Severson

10:00 am  Coffee Break

10:15 am  The Integrated Energy System  
Nina Axelson, Moderator  
Panelists: Al Choi, Jeff Haase, Julie Pierce, Seth Mullendore

11:15 pm  Networking Break  
Pick up your lunch and check out the research posters!

12:00 pm  Lunch and Keynote Address  
Janice Lin  
*Introduction by John Frederick*

12:50 pm  The Rules Matter  
Alex Klass, Moderator  
Panelists: Hari Osofsky, Commissioner John Tuma, 
Rao Konidena, Steve Dahlke, Seth Mullendore

2:10 pm  Coffee Break

2:25 pm  The Business Case for Storage  
Paul Douglas, Moderator  
Panelists: Dan Cross, Beth Soholt, 
Dan Juhl, Stacy Miller, Steve Nisbet

3:45 pm  Facilitated Participant Engagement  
Concluding Remarks  
Ellen Anderson  
Ralph Jacobson

4:30 pm  Reception  
Located in the Auerbach Commons 
& Stein Terrace on the Main Floor  
Welcome by Law School  
Dean David Wippman
Ellen Anderson
Executive Director, Energy Transition Lab

From 2012 to 2014, Anderson was senior advisor on energy and environment to Gov. Mark Dayton. Anderson helped coordinate state climate change planning and led the implementation of Gov. Dayton’s Executive Order 11-32, including organizing the Minnesota Environmental Quality Board’s Minnesota Environmental Congress, issuing Minnesota’s Environment and Energy Report Card, and initiating and drafting the EQB’s Minnesota and Climate Change: Our Tomorrow Starts Today report.

In March 2011, Gov. Dayton appointed Anderson chair of the Minnesota Public Utilities Commission, where she served until early 2012. Anderson served in the Minnesota Senate from 1993 to 2011, representing several neighborhoods of St. Paul and the city of Falcon Heights. She chaired the Jobs, Energy and Community Development Committee, the Commerce Committee, the Energy and Telecommunications Committee, and the Environment, Energy and Natural Resources Finance Committee. Her signature legislation includes the Renewable Energy Standard, the Community Based Energy Development law, the Next Generation Energy Act, and many other energy and consumer protection laws, including a law raising the minimum wage, the Clean Water, Land, and Legacy Amendment (co-author), the Mortgage Foreclosure Prevention Act; and the first law in the nation protecting nursing mothers in the workplace. Anderson holds a B.A. from Carleton College and a J.D. from the University of Minnesota Law School. She was adjunct faculty at Metropolitan State University and the University of Minnesota, teaching courses in law, energy, and sustainability. Recently, Anderson received the 2013 Ecological Society of America Regional Policy Award for Informing Policy with Ecological Science and served on the advisory committee for the 2014 Midwest Innovation Summit. She serves as a member of the Citizens League Electrical Energy Study Committee, an observer to the e21 project on new utility business models, and the advisory boards for the Joint Degree Program in Law, Science & Technology and Climate Generation.

Hari Osofsky
Faculty Director, Energy Transition Lab

Hari Osofsky is a Professor of Law, the Faculty Director of the Energy Transition Lab, and the Director of the Joint Degree Program in Law, Science, and Technology at the University of Minnesota Law School. She also is on the faculty of the Conservation Biology Graduate Program, adjunct professor in the Department of Geography, Environment and Society, and a Fellow with the Institute on the Environment. She has been awarded the 2014-15 Julius E. Davis Chair in Law, the 2013-14 Feaster-Lampert Chair in Urban and Regional Affairs, and the 2013 Sara Evans Faculty Woman Scholar/Leader Award. Osofsky’s over fifty publications focus on improving governance and addressing injustice in energy and climate change regulation. Her scholarship has received peer recognition from both lawyers and geographers and includes books with Cambridge University Press on climate change litigation, textbooks on both energy and climate change law, and articles in leading law and geography journals. She has supervised course contributions to the American Wind Energy Association, Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling, Earthjustice, Great Plains Institute, Hennepin County, Twin Cities Met Council, Minnesota Pollution Control Agency, Minnesota Public Utilities Commission, the National Regulatory Research Institute, Northwest Arctic Borough, the Phillips Community, the Southern Environmental Law Center, the University of Minnesota, and the Western Environmental Law Center. She also assisted with the Inuit Circumpolar Conference’s petition on climate change to the Inter-American Commission on Human Rights. Her professional leadership roles have included, among others, serving as President of the Association for Law, Property, and Society, chair of the American Association of Law School’s Section on Property, and a member of the Executive Council of the American Society of International Law and the International Law Association’s Committee on the Legal Principles of Climate Change. She also is a member of the Board of Governors of the Society of American Law Teachers, the International Bar Association’s Model Statute on Climate Change Remedies Working Group, and the editorial board of Climate Law. Osofsky received a B.A. and a J.D. from Yale University, and a Ph.D. in the Geography from the University of Oregon.
**Janice Lin**
Managing Partner, Strategen Consulting LLC  
Executive Director, California Energy Storage Alliance (CESA)  
Chair of the Executive Committee of the Board, Global Energy Storage Alliance (GESA)

Janice Lin brings more than two decades of experience in clean energy strategy, market development, and corporate strategy to Strategen. During this time she has advised a diverse range of clients including renewable energy equipment manufacturers and service providers, large corporations diversifying into clean energy, and real estate developers building sustainable communities.

In 2014 Janice co-founded the Global Energy Storage Alliance (GESA), an international non-profit organization, and currently serves on the Board of Directors and as Chair of the Executive Committee. Prior to that Janice co-founded the California Energy Storage Alliance (CESA) in 2009, and currently serves on the Board of Advisors for the Energy Policy Initiatives Center (EPIC) and the Energy Storage Committee of Joint Venture Silicon Valley. Janice is also a member of the Advisory Council of the German American Chamber of Commerce, the UCSD Strategic Energy Initiatives Advisory Council, and Chair of the annual Energy Storage North America (ESNA) conference.

Prior to founding Strategen in 2005, Janice held several senior management positions with PowerLight Corporation (now SunPower Corporation), including Vice President of Product Strategy and Vice President of Business Development. During her tenure at PowerLight, Janice led initiatives in product and new market strategies, business development, regulatory affairs, strategic partnerships, investor relations, and customer finance.

Janice holds an MBA from the Stanford Graduate School of Business, a BS from the Wharton School, University of Pennsylvania, and a BA in International Relations from the University of Pennsylvania’s College of Arts and Sciences. She is the winner of ESA’s 2013 Phil Symons Energy Storage Award, and NAATBATT’s 2014 Market Development Award.

**Keynote introduction by:**

**John Frederick**
Former CEO, Silent Power

John joined Silent Power in 2008 and helped establish Silent Power as an early leader in distributed energy storage. Silent Power was the world’s first company to offer a UL listed energy storage system utilizing lithium ion battery technology and conducted over 15 utility projects that included Southern California Edison, SMUD, NV Energy, San Diego Gas & Electric, Duke Energy, Wright Hennepin Electric and others. John holds a Bachelor of Science degree in Electrical Engineering from Iowa State University and a Master’s in Business Administration degree from the College of St. Thomas. 

John joined a leading electrical power generation company, Onan (now part of Cummins Engine) after college and held product management positions. Following Onan, John joined ADC, a Fortune 500 communications equipment manufacturer. John lead numerous high technology initiatives at ADC including fiber-to-the home, cable telephony, and broadband wireless that helped propel the ADC’s revenues from $100 million to over $3 billion. John also founded his own consulting firm and was Executive Vice President of Sales and Marketing and a corporate officer for publicly traded Zareba Systems prior to joining Silent Power.
Speakers

Introductory Remarks
James Tong
Clean Power Finance

James Tong is Vice President of Strategy & Government Affairs at Clean Power Finance (CPF). James leads CPF’s initiatives to reduce solar soft cost and develop strategies to integrate renewables into the grid. James is also a principal in an unprecedented big data analysis led by the National Renewable Energy Laboratory studying consumer solar adoption. James frequently speaks at industry forums and has co-authored papers with former FERC Chairman, Jon Wellinghoff, on distributed energy resources and utility reforms. James earned a BA in economics from Yale University and an MBA from the Kellogg School of Management at Northwestern University.

Concluding Remarks
Ralph Jacobson
Innovative Power Systems

As the founder and CEO of Innovative Power Systems, Inc., Ralph spent the first decade of his twenty-five years in the solar industry designing and installing off-grid, battery-based power systems for homes and cabins, utilizing combinations of PV, small wind, and gas or propane generators. He is also interested in how biomimicry can inform our use of storage to improve the electric power system.

As former President of the Minnesota Solar Energy Industries Association (MnSEIA) Ralph worked with legislators, regulators, and utilities to craft renewable energy policy. In 2014 he was honored with a lifetime achievement award by MnSEIA for his long term commitment to renewable energy and the solar industry in Minnesota. Ralph earned a BS in Materials Science and Engineering at the University of Minnesota.

Reception Welcome
Dean David Wippman
University of Minnesota Law School

David Wippman is a recognized authority in international law. He has taught public international law, international criminal law, international human rights, and ethnic conflict. He received his B.A., summa cum laude, from Princeton University in 1976, his M.A. through a fellowship in the Graduate Program in English Literature at Yale University in 1978, and his J.D. from Yale Law School in 1982. While at Yale, he was the editor-in-chief of the Yale Law Journal. He clerked for The Honorable Wilfred Feinberg, Chief Judge of the U.S. Court of Appeals for the Second Circuit. Professor Wippman became Dean of the University of Minnesota Law School on July 1, 2008.

Previously, he was a professor and Associate Dean at Cornell Law School and served as Vice Provost for International Relations at Cornell University.
The Latest in University Research

Moderator
Kristen Nelson
University of Minnesota

As an environmental sociologist, Dr. Kristen C. Nelson contributes to the interdisciplinary understanding of environmental change and human systems. Her recent research focuses on urban ecosystems (household choices and community planning), deliberative governance and policy formation, environmental risk assessment, and the dynamics of social networks. In all environmental issues her interest is in providing theoretical and practical insights regarding what influences human behavior and societal change at multiple scales.

At the University of Minnesota, she is a H.T. Morse Faculty Award recipient and Professor in the Department of Forest Resources and the Department of Fisheries, Wildlife and Conservation Biology. Her collaborative projects in the U.S. include work with the U.S. Forest Service, U.S. Fisheries and Wildlife Service, Minnesota DNR, Minnesota MPCA as well as numerous cities and counties. Internationally her collaborative projects have been with Rockefeller Foundation as well as scientists, managers, and decision makers in Switzerland, Kenya, Brazil, Nicaragua, Chile, Mexico, Vietnam, Malaysia, and China.

Massoud Amin
University of Minnesota

Dr. Amin holds the Honeywell/H.W. Sweatt Chair and is the director of the Technological Leadership Institute (TLI), is a professor of Electrical & Computer Engineering and is a University Distinguished Teaching Professor at the University of Minnesota. Dr. Amin is widely known as the “Father of the Smart Grid” and received the Energy Thought Leader of the Year award in 2015. He is Chairman of the IEEE Smart Grid, TexasRE, and a member of the BoD of MRO. Before joining the University, he was with the Electric Power Research Institute, where he served as head of mathematics and information sciences, and pioneered R&D in Smart Grids. After 9/11, he directed Security R&D and led Grid Operations/Planning and Energy Markets. At EPRI, he led technology development, and twice received the Chauncey Award.

Ned Mohan
University of Minnesota

Ned Mohan joined the University of Minnesota in 1975, where he is Oscar A. Schott Professor of Power Electronic Systems and Morse-Alumni Distinguished Professor. He received his Bachelor’s degree from the Indian Institute of Technology-Kharagpur and his PhD in Electrical Engineering and Master’s in Nuclear Engineering are from UW-Madison. He has written 5 textbooks; all together, they have been translated into eight languages. His area of research is in power electronics applied to power systems and he holds several patents. He is also a Fellow of the IEEE and a member of the National Academy of Engineering.
The Latest in University Research

Perry Li
University of Minnesota

Perry Li is Professor and Deputy Director of the Center for Compact and Efficient Fluid Power. His research interests are in fluid power, control of printing and imaging systems, paper manufacturing and robotics, nonlinear and intelligent control, biomechanics, rehabilitation engineering, transportation systems, and manufacturing. Recent and current research includes passive velocity field control of mechanical systems, control and mechanical design interplay, active learning, distributed control of large scale systems, robust control of printing process, Automated Vehicle and Highway Systems (AVHS), self-optimizing control, and control of exercise machines.

Kim Stelson
University of Minnesota

Kim A. Stelson is Distinguished College of Science and Engineering Professor in the Department of Mechanical Engineering at the University of Minnesota where he has been since 1981. He is Director of the NSF-funded Engineering Research Center for Compact and Efficient Fluid Power. Stelson received his B.S. degree in mechanical engineering from Stanford University in 1974 and his M.S. and Sc.D. degrees in mechanical engineering from M.I.T. in 1977 and 1982. His fluid power research includes work on hydraulic hybrid vehicles and hydraulic transmissions for wind power. Stelson is a Fellow of the American Association for the Advancement of Science.

Don Fosnacht
University of Minnesota

Donald Fosnacht is the director of the Center for Applied Research and Technology Development. He is a metallurgical engineer with a broad background that includes minerals extraction and minerals processing, extractive and physical metallurgy and analytical chemistry. He is also a seasoned technical manager with 20+ years’ experience in managing and directing research programs and technology development. He consults with various clients on business improvement specializing in yield and profitability enhancement and cost reduction. He is a partner in Steel Profitability Consulting, Inc.

Eric Severson
University of Minnesota

Eric Severson received the Ph.D. degree in electrical engineering from the University of Minnesota in June 2015 and is the recipient of the 2009 Department of Defense NDSEG fellowship, the 2009 NSF Graduate Research Fellowship, and the 2014 University of Minnesota Doctoral Dissertation Fellowship. Starting this fall, he will be working on flywheel energy storage as a post-doc in the University of Minnesota’s electrical engineering department in the power electronics research group. His research interests include magnetic bearings, electric motors, power electronics, and flywheel energy storage.
The Integrated Energy System

Moderator
Nina Axelson
Evergreen Energy

Nina Axelson is the Vice President of Public Relations for Ever-Green Energy and oversees public affairs for Ever-Green Energy and its affiliates. Axelson’s role includes community energy planning and authoring studies, including reports for the Department of Energy and International Energy Agency. This work also features education programming, including the development of a local education and sustainability platform.

Al Choi
Xcel Energy

Al Choi is currently the manager of Xcel Energy’s Emerging Technology R&D team. He has been with Xcel Energy for the past seven years starting with their SmartGridCity program in 2008. Al and his team focus on research and demonstrations about emerging and disruptive technologies that may impact utilities in the 5-10 year timeframe.

Jeff Haase
Great River Energy

Jeff Haase is the Energy Efficiency Program Coordinator with Great River Energy’s Membership and Energy Markets Division. In this capacity he assists in the development of efficiency & conservation program offerings and tracking systems for Great River Energy’s member cooperatives and evaluates the energy savings achievements reported to the state of Minnesota. Jeff focuses on futurizing GRE’s conservation program offerings, identifying new efficiency opportunities and streamlining data capture to better quantify the programs benefits. Jeff holds a Bachelor’s of Mechanical Engineering from the University of Minnesota, and is a registered Professional Engineer.

Julie Pierce
Minnesota Power

Julie Pierce has 15 years in the Electric Industry with a diverse set of experiences. After earning a Bachelor of Science in electrical engineering from North Dakota State University, Julie has worked in a variety of industry roles including topic areas of transmission reliability operations, national transmission congestion policy and operational tools, transmission reliability and market operations in the Midwest and most recently resource adequacy and power supply planning. As Director of Power Supply she provides strategic vision, risk assessment and directional recommendations for the company’s evolving power supply that are vital to successfully guiding Minnesota Power’s Energy Forward resource strategy.

Seth Mullendore
Clean Energy States Alliance

Seth Mullendore is a Project Manager for Clean Energy Group, where he works as a coordinator, technical advisor, and analyst on the Resilient Power Project. Recent publications include Solar + Solar 101: An Introductory Guide to Resilient Solar Power Systems and Distributed Energy Storage: A Case for National and International Collaboration. Prior to joining Clean Energy Group, Seth served as a Sustainable Energy Fellow with Union of Concerned Scientist and worked with Maine Clean Communities on advancing alternative fuel policies. Seth holds a MS in Civil & Environmental Engineering from Stanford University.
The Rules Matter

Moderator
Alexandra Klass
University of Minnesota Law School

Alexandra B. Klass is a Distinguished McKnight University Professor at the University of Minnesota Law School. She teaches and writes in the areas of energy law, environmental law, natural resources law, tort law, and property law. Her recent work, published in many of the nation’s leading law journals, addresses regulatory challenges to integrating more renewable energy into the nation’s electric transmission grid, siting and eminent domain issues surrounding interstate electric transmission lines and oil and gas pipelines, and applications of the public trust doctrine to modern environmental law challenges. She is a co-author of Energy Law and Policy (West Academic Publishing 2015) (with Davies, Osofsky, Tomain, and Wilson) and The Practice and Policy of Environmental Law (Foundation Press, 3d ed. 2014) (with Ruhl, Salzman, and Nagle). Prior to her teaching career, she was a partner at Dorsey & Whitney LLP in Minneapolis, where she specialized in environmental law and land use litigation. She received her B.A. from the University of Michigan and her J.D. from the University of Wisconsin Law School. She is a member at the Center for Progressive Reform and Resident Fellow at the University of Minnesota’s Institute on the Environment.

Commissioner John Tuma
Minnesota Public Utilities Commission

John Tuma was appointed to the Public Utilities Commission by Governor Mark Dayton. He is a member of the National Association of Regulatory Utility Commissioners (NARUC) and serves on the NARUC Committee on Critical Infrastructure. Commissioner Tuma has decades of experience working on energy and conservation policy for a variety of nongovernmental organizations. He served in the Minnesota House of Representatives from 1995 to 2002, representing parts of Rice, LeSuer, Scott, and Dakota counties and has practiced law in Northfield, MN. He earned his B.A. from University of Minnesota, Mankato, and his J.D. from the University of Minnesota Law School.

Rao Konidena
MISO

Rao Konidena is Senior Manager for Transmission Asset Management Operations at MISO in Eagan, MN. In this role, he is responsible for process based compliance, business management & forecasting functions for transmission planning area. He is a proud member of Finnish American Chamber of Commerce, and volunteer Finance Commission member at City of Roseville, MN. Rao has a Master’s in Business Administration (MBA) from University of Minnesota’s Carlson School of Management Executive management program. He also has a Master of Science in Electrical Engineering from University of Texas at Arlington.

Steve Dahlke
Great Plains Institute

Steve Dahlke joined the Great Plains Institute in 2012 as an Associate. His work focuses on the development of electric transmission infrastructure needed for renewable energy development. Steve works to reduce market barriers to advanced “Smart Grid” technologies like demand response and energy storage that will improve the efficiency of the electric system and help integrate renewable energy. He is involved in several Midwestern electricity planning and market initiatives. He received his Bachelor of Arts degree from St. John’s University in 2012 and his thesis focused on energy storage technologies for renewable energy integration.
The Business Case for Storage

Moderator
Paul Douglas
AerisWeather

Paul Douglas is Minnesota’s first AMS-Certified Broadcast Meteorologist, with a 38 year career in television and radio. He started doing weather reports for AM radio in high school and had an 11 year run on KARE-11, another 11 years at WCCO-TV. Today he’s Founder and President of AerisWeather, which provides weather services for businesses and consumers. His company helped to launch “WeatherNation TV”, a new 24-7 weather channel, in 2011. Previous companies include “EarthWatch Communications”, which invented 3-D weather graphics for television stations worldwide – featured in Steven Spielberg’s movies “Jurassic Park” and “Twister”. His last venture was “Digital Cyclone”, the first company in the world to put an app on a smart phone in 2001. Author, teacher and serial entrepreneur, Douglas writes a daily print and online column for the Star Tribune. An Evangelical Christian, Douglas is on the board of EEN, the Evangelical Environmental Network. He has two sons, a digital media marketing specialist and a Naval Academy graduate, now flying helicopters in the Pacific.

Dan Cross
Mortenson Construction

Dan Cross is a design phase executive in Mortenson's Renewable Energy Group focusing on wind, solar, and other renewable energy applications. He is a professional engineer (Civil, MN) having received his Bachelor of Science degree from the University of Minnesota and his Master of Science degree from the University of Illinois at Urbana/Champaign. He has been employed in the construction industry for more than 30 years including time he served on active duty with the Navy's Civil Engineer Corps. He continued his affiliation with Civil Engineer Corps in the Naval Reserves, eventually retiring in 2004. Dan heads up Mortenson's analysis of the emerging energy storage market.

Beth Soholt
Wind on the Wires

Beth Soholt is the Executive Director of Wind on the Wires (WOW). WOW is the Midwest’s premier organization focused on significantly expanding the penetration of wind power and overcoming the barriers to bringing wind power to market. Beth is responsible for guiding WOW’s work in the areas of transmission planning, state regulatory proceedings, legislative policy, and education/outreach and serves on the board of directors. She holds a seat on the Midwest Independent System Operator (MISO) Advisory Committee representing the Environmental Sector. Beth holds a law degree from Hamline University Law School, and a Bachelor of Arts degree from Luther College.
The Business Case for Storage

Dan Juhl
Juhl Energy

Dan Juhl is the Chairman and CEO of Juhl Energy Inc, a publicly traded company active in the renewable energy business. Dan has pioneered renewable energy technologies for over 37 years, and has been involved in every aspect of wind and solar including R&D, design, manufacturing, development, installation, and O&M. He has also been instrumental in helping to form public policy by working with legislators and regulators on the workings and benefits of utilizing renewables in the energy mix. He is considered to be one of the nation’s leading experts on wind, solar and storage technology for distributed and community owned renewable power generation.

Stacy Miller
Minnesota Department of Commerce

Stacy Miller has been a Solar Policy Specialist with the Minnesota Department of Commerce, Division of Energy Resources for the past 9 years. She is a nationally recognized solar policy expert with a unique combination of technical, policy, and business knowledge gained through 15-plus years of experience in various aspects of the solar industry. She has helped implement numerous solar policies in the state and has administered several programs that promote the use of solar energy and distributed generation resources in Minnesota.

Steve Nisbet
Wright-Hennepin Co-op

Steve Nisbet is the Vice President of External Relations & Power Solutions at Wright-Hennepin Cooperative Electric Association in Rockford, MN. Steve is responsible for the planning, design, testing, commissioning, and maintenance of renewable and alternative energy systems at Wright-Hennepin. He received a bachelor’s degree in electric engineering from Texas Tech in 1993, and he has been working with telephone and electric cooperatives in both operational and consulting roles in Texas and Minnesota since that time.

Today’s Energy Storage Summit is organized by the Energy Transition Lab.

Supported by the Office of the Vice President for Research, the Institute on the Environment, and the Law School, the Energy Transition Lab brings together leaders in government, business, community, and nonprofit sectors to develop new energy policy pathways, institutions and regulations. The Lab, led by Faculty Director Hari Osofsky and Executive Director Ellen Anderson, leverages University expertise in building collaborations with these leaders to create a focal point for innovative solutions.
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