



## 12<sup>th</sup> Annual Graduate Student Conference

**An Equitable and Inclusive Energy Future**

### **AGENDA**

THURSDAY, APRIL 6 <sup>th</sup> , 2023	
ASU – Old Main, 400 E. Tyler Mall, Tempe, AZ 85287	
8:30 AM – 9:00 AM	Continental Breakfast and Registration
9:00 AM – 9:15 AM	<p>Welcome remarks</p> <p><b>Stephen Goodnick, PhD</b>; Professor of Electrical, Computer and Energy Engineering, Deputy Director, ASU LightWorks®, Arizona State University</p> <p><b>Gabriel A. Montaño, PhD</b>; Professor, Applied Physics and Materials Science Program; Director of iMIRA!, Center for Materials Interfaces in Research and Applications, Northern Arizona University</p> <p><b>Erin Ratcliff, PhD</b>; Associate Professor, Chemical and Environmental Eng/Materials Science and Eng/Chemistry and Biochemistry; Co-Director of Institute for Energy Solutions</p> <p><b>Jonathan Bean, PhD</b>; Assistant Professor of Architecture and Sustainable Built Environments, Co-Director, Institute for Energy Solutions</p> <p><b>Neal Armstrong, PhD; Neal R. Armstrong</b> Regents Professor Emeritus Chemistry/Biochemistry/Optical Sciences University of Arizona <a href="https://cbc.arizona.edu/faculty/neal-r-armstrong">https://cbc.arizona.edu/faculty/neal-r-armstrong</a></p> <p><b>Tom Acker, PhD</b>; Sr. Principal Research Engineer, SRP, Emeritus Professor of Mechanical Engineering, Northern Arizona University</p>
9:15 AM – 9:30 AM	Welcome from <b>Director of LightWorks and Senior Director of Global Futures Laboratory: Gary Dirks</b>

9:30 AM – 10:15 AM	<i>Intro by <b>Levi Esquerra</b>: Keynote Speaker, <b>Shalanda Baker (Director of the Office of Economic Impact and Diversity and Secretarial Advisor on Equity)</b> <b><i>Energy Justice - Energy and Equity, and Meeting the Moment</i></b></i>
10:15 AM – 12:00 PM	Panel on Energy Futures and Energy Equity ( <b>Bettina Arkhurst, NREL, Clark Miller, ASU, Eric Massey from APS, Tommy Rockward, LANL</b> ) <b><i>Panel moderated by Erin Ratcliff</i></b>
12:00 PM – 1:00 PM	<b>Lunch</b>
1:00 PM – 2:00 PM	<b>RENEW exercise - Gabe Montaño</b>
2:00 PM – 3:15 PM	Industry Panel on Career Paths: <b>Angie Bond-Simpson, SRP, Sarah Noll, APS, Rustyn Sherer, TEP, Dipti Sheth, Schneider Electric</b> <b><i>moderated by Tom Acker</i></b>
3:15 PM – 3:30 PM	Break
3:30 PM – 4:30 PM	<b>Fast Pitches - Maxx Patterson</b>
4:30 PM – 5:30 PM	Open
5:30 PM – 6:30 PM	Poster session
6:30 PM – 7:00 PM	Dinner reception at <b>Old Main</b>

**FRIDAY, APRIL 7<sup>th</sup>, 2023**

ASU – Old Main, 400 E. Tyler Mall, Tempe, AZ 85287

8:00 AM – 9:00 AM	Continental Breakfast at Old Main
9:00 AM - 9:15 AM	Welcome from Vice Provost and Dean of Ira A. Fulton School of Engineering, <b>Kyle Squires</b>
9:15 AM – 10:15 AM	Keynote Speaker, <b>Carol Burns</b> , Deputy Director for Research and Chief Research Officer, Lawrence Berkeley National Laboratory, <b><i>Accelerating our Energy Future - A view from a DOE National Laboratory</i></b> ( <i>Introduction by Gabe Montaño</i> )
10:15 AM – 10:30 AM	Break
10:30 AM – 12:00 PM	<b>RENEW Proposal Challenge (include students, faculty, and company reps)</b>
12:00 PM – 1:00 PM	<b><i>Working Lunch</i></b>
1:00 PM – 2:00 PM	<b>RENEW Proposal Challenge continued</b>
2:00 PM – 2:30 PM	Presentation of RENEW Proposal Challenge results
2:30 PM – 2:45 PM	Break
2:45 PM – 3:15 PM	Award Ceremony and Closing remarks

# Keynote Speaker



The Honorable **Shalanda H. Baker** is the Director of the Office of Economic Impact and Diversity at the U.S. Department of Energy and Secretarial Advisor on Equity. Prior to her Senate confirmation, she served as the Nation's first-ever Deputy Director for Energy Justice. Before joining the Biden-Harris Administration, she was a Professor of Law, Public Policy and Urban Affairs at Northeastern University. She has spent over a decade conducting research on the equity dimensions of the global transition away from fossil fuel energy to cleaner energy resources. She is the author of over a dozen articles, book chapters, and essays on renewable energy law, energy justice, energy policy, and renewable energy development. In 2016, she received a Fulbright-Garcia-Robles research fellowship to study climate change, energy policy, and indigenous rights in Mexico. She is the Co-Founder and former Co-Director of the Initiative for Energy Justice ([www.iejusa.org](http://www.iejusa.org)), an organization committed to providing technical law and policy support to communities on the frontlines of

climate change. Her book, *Revolutionary Power: An Activist's Guide to the Energy Transition* (Island Press 2021), argues that the technical terrain of energy policy should be the next domain to advance civil rights. She received her BS from the United States Air Force Academy and JD from Northeastern University School of Law. She obtained her LLM while serving as a William H. Hastie Fellow at the University of Wisconsin School of Law.



## Carol Burns

**Deputy Director for Research and Chief Research Officer**

**Lawrence Berkeley National Laboratory**

Carol Burns is Deputy Director for Research and Chief Research Officer at Lawrence Berkeley National Laboratory (Berkeley Lab), a Department of Energy (DOE) Office of Science lab managed by University of California. She is

responsible for the development, implementation, and stewardship of Berkeley Lab's research enterprise, and serves as the Lab's chief research liaison with the Office of Science, the University, the other national labs, and other key partners.

Carol has served in leadership roles within the national laboratory system for more than 25 years, managing the execution of technical and research programs. She has deep experience leading the development and implementation of science and technology strategies, and has stewarded the development of external partnerships and programs for workforce development.

Burns is a recognized expert in f-element and radiochemistry with more than 100 peer-reviewed publications and invited book chapters, and has served on a number of editorial boards, review boards, and advisory panels. She is the recipient of a number of awards for scientific achievement and leadership, most recently the American Chemical Society's Francis P. Garvan-John M. Olin Medal, recognizing distinguished service in chemistry by women chemists. She is a fellow of the American Association for the Advancement of Science.

She has extensive experience in the systems enabling the research enterprise in the national laboratories, including a deep commitment to workforce development and diversity in STEM. She has experience in science policy at the national level, having served as a senior policy analyst in the Office of Science and Technology Policy (OSTP).

Burns received her B.A. in Chemistry from Rice University, and her PhD, in Chemistry as a Hertz Foundation Fellow at the University of California at Berkeley.



## Levi Esquerra

The Honorable N. Levi Esquerra (Chemehuevi) is the first University of Arizona first Senior Vice President for Native American Advancement and Tribal Engagement. In this position, he coordinates University-wide efforts to advance Native American programs and tribal engagement in consonance with the strategic plan. He serves as a point of contact for Native issues and as a liaison between the University and tribal governments and regional and national tribal organizations. He grew up in Parker, home of the Colorado River Indian Tribes, one of the 22 federally recognized sovereign Native American tribes in Arizona. He is a member of the Chemehuevi Indian Tribe, based in Havasu Lake, California, 40 miles north of Parker on the Colorado River. He has nearly three decades of experience facilitating and promoting Native American advancement

and economic development for Native Nations, including two years as Chairman of the Chemehuevi Indian Tribe and three additional terms on the Tribal Council. Most recently, he served as Director of the Center for American Indian Economic Development and the Rural Policy Institute, both in the Alliance Bank Economic Policy Institute, which is part of Northern Arizona University's W.A. Franke College of Business Administration. His experience also includes several other community and economic development roles with the state of Arizona, St. Louis Community Development Agency and American Indian Center of Mid-America, as well as work to address the needs of indigenous tribes in Argentina while representing the U.S. Department of State. His expertise also led to the Canadian Consulate inviting him to participate in the annual Canadian Indigenous Conference where he shared best practices with First Nations communities. As an elected leader, Esquerra helped shape the Nuwuvi Economic Development Corporation, which creates, manages, and develops tribal enterprises to promote economic self-sufficiency through business development, job creation and revenue production.

## Panel Speakers



### Clark A. Miller

Clark A. Miller is the Director of the Center for Energy & Society at Arizona State University and a Professor in the School for the Future of Innovation in Society. His current research and teaching focus on the social drivers, dynamics, and outcomes of decarbonization, with diverse interests in the transformation of energy ownership and political economy, the relationships among science, technology, and democracy, and the potential to leverage energy transitions to advance social justice. He is a member of the National Academies committee on accelerating decarbonization in the United States. He also advises utilities, cities, the national laboratories, and communities on practices for advancing just energy transitions. His writings include *Pathways to a Carbon Neutral Arizona Economy* (2022), *Accelerating Decarbonization of the US Energy System* (2021), *Cities of Light: A Collection of*

*Solar Futures* (2021), *The Weight of Light: A Collection of Solar Futures* (2019), *Designing Knowledge* (2018), *Science and Democracy: Making Knowledge and Making Power in the Biosciences and Beyond* (2015), *The Handbook of Science & Technology Studies* (2015), *The Practices of Global Ethics* (2015), *Nanotechnology, the Brain, and the Future* (2013), *Arizona's Energy Future* (2011), and *Changing the Atmosphere: Expert Knowledge and Environmental Governance* (2001). He obtained his BS in electrical engineering from the University of Illinois and his PhD in electrical engineering from Cornell University.





## **Bettina Arkhurst**

Bettina Arkhurst is a Ph.D. candidate in the George W. Woodruff School of Mechanical Engineering at Georgia Tech and an energy equity intern in the Accelerated Deployment and Decision Support Center at the National Renewable Energy Laboratory (NREL). She holds a bachelor's degree in mechanical engineering from MIT and a master's degree in mechanical engineering from Georgia Tech. Her dissertation research seeks to understand how concepts of energy justice can be applied to renewable energy technology design to better consider marginalized and vulnerable populations. Bettina is a National Science Foundation Graduate Research Fellow, Alfred P. Sloan Scholar, Novelis Scholar, and Georgia Tech Brook Byers Institute for Sustainable Systems Graduate Fellow



## **Eric Massey**

Eric Massey is the Director of Sustainability for Arizona Public Service, and his primary responsibilities at APS include oversight and implementation of the company's sustainability program, including participation in the development of, and on-going responsibility to support, APS's commitment to achieve 100% clean, carbon free generation by 2050. Previous to his current capacity at APS, he served as the Director of the Environment, Water Resources and Sustainability Department. He is a current member of EPA's Clean Air Act Advisory Committee.

Eric holds a Bachelor of Science & Engineering degree from Arizona State University for Chemical Engineering with an emphasis on environmental studies. Prior to his tenure at APS, Eric served 18 years in various capacities and levels of leadership at the Arizona Department of Environmental Quality's Air Quality Division.



## **Rustyn Sherer**

Rustyn Sherer is a Sr. Key Account Manager with Tucson Electric Power and is responsible for servicing large business and industrial accounts. Customers in his portfolio include mining and aggregate operations; defense; aerospace manufacturing; education; and municipalities. He joined the company in November 2020.

Rustyn has 18+ years of experience working in the electric utility industry in Arizona. Previously he worked for Arizona Public Service as a Community Affairs Manager; and as a Sr. Strategic Planning Analyst at Salt River Project.

Rustyn earned a Bachelor's of Science degree in Political Science from the Barrett Honors College at Arizona State University; and later an MBA with an emphasis in Marketing and Statistics from the Eller College of Management at the University of Arizona. That said, he is a Sun Devil!

Rustyn is from Tempe, AZ; and resides with his family in Gilbert. His son Hayden is a current Arizona State Freshman pursuing an Engineering degree from the Fulton School.



## Dipti Sheth

An experienced, passionate and purpose-driven leader committed to help create a new energy future. I lead Schneider Electric Power Services Sales team-West with a focus of driving sustainability, efficiency, reliability and resiliency outcomes for our customers through optimized Digital Transformation.



## Angie Bond-Simpson

Director, Integrated System Planning & Support at Salt River Project

Angie Bond-Simpson is an Earth & Climate Scientist by education (B.S. in Geology from Saint Louis University and a M.S. in Geology from Arizona State University), and has 20 years' experience in water and power utility planning at SRP. Marrying these experiences together, along with propensity to be a thorn in the side of others-, she takes pride imagining the future power system, working cross functionally to clear hurdles, and drive the type of change customers desire. She is leading SRP's transition from Integrated Resource Planning to a more holistic view of Integrated

System Planning, which incorporates customer programs, transmission, distribution, and generation planning and operations and seeks to maintain SRP's high standard of safe, reliable, affordable power, while driving to a lower carbon future



## Tommy Rockward

Tommy Rockward is currently a Research Scientist IV in the Materials, Physics, and Applications Group at Los Alamos National Laboratory. He received his B.S in Physics in 1994 and M.S. in Applied Physics from Southern University in December 1998. His thesis focused on optimizing polymer electrolyte membrane fuel cell performance in the presence of reformat gas. His work has continued over 20 years at LANL and expanded to include cathode and contaminant issues. He has actively participated in the USFCC Materials and Components Working Group to establish a standardized testing protocol for fuel cells. Tommy served as the U.S. international representative to establish a hydrogen fuel standard for the Department of Energy's Safety, Codes, and Standards sub-

program. Tommy was responsible for conducting experiments with different contaminants to probe their impact on an operating fuel cell using various operating conditions. To date, Tommy has disseminated results to a broad audience that included international collaborators such as Japan, Korea, Germany, and France to name a few. His efforts were instrumental in developing an international fuel quality standard, ISO-14687-2 for road vehicles. In addition, Tommy also served as sub-committee chair for the ASTM D03.14 group. This group formed to establish standard test methods to detect trace contaminants in gaseous hydrogen fuel for the DOE's Safety, Codes, and Standards Program. Tommy has co-authored several publications and received several patents.

In 2014, Tommy was instrumental in establishing the Under-Represented Minority Partnership Program (formerly called the African American Partnership Program) at LANL. The URMPP, with support from the Director's Office at LANL, was formed to augment the NNSA's Minority Serving Institution Partnership Program. Tommy's diligence has helped form several NNSA-funded consortia at LANL. These collaborative efforts have helped to foster sustainable relationships with several MSIs across the United States, and has provided opportunities to over 150 STEM scholars to conduct cutting-edge research at LANL. Tommy is hopeful that these efforts will help improve the core capabilities at each of their university partners' campuses, both experimentally and analytically; while helping to produce attractive STEM candidates for the NSE complex.



## **Sarah Noll**

Sarah Noll, Product Development & Strategy Leader, APS, develops and implements new energy programs to help APS customers meet their sustainability goals. Prior to joining APS Sarah has worked in the utility industry for 8 years focusing on innovative solar programs and energy policy.

Sarah received her B.S. in Renewable Energy and M.S. in Applied Economics of Electricity, Natural Gas, and Telecommunications from Illinois State University. During her time at Illinois State University Sarah became the President of the university's Solar Car Team, leading the team to its first international race in Abu Dhabi.