2023 International Energy Workshop, Colorado School of Mines, Green Center

Final Agenda

Tuesday, June 13th

Room/Location	start	end	Day 1 June 13	Speaker & Affiliation [Moderator - Affiliation]	Title
Grand Lobby	8:00	9:00	Check-In, Networking, and Continental Breakfast		
Metals Hall	9:00	9:10	Workshop Kick-Off	Trieu Mai, Greg Clough, Geoffrey Blanford, Bob van der Zwaan	
Metals Hall	9:10	9:30	Welcoming Remarks by Hosts	Peter Green (NREL), [Doug Arent - NREL]	
Metals Hall	9:30	10:45	Plenary Session 1 (2 keynote speakers for 30 min each plus 15 min Q&A)	Sonia Aggarwal (Energy Innovation), Carla Frisch (U.S. DOE) [Geoff Blanford - EPRI]	
Grand Lobby	10:45	11:15	Coffee Break		
	11:15	**12:15**	**Parallel Session 1 (3 speakers each for 20 min incl. Q&A)**		
Metals Hall	11:15	12:15	Energy System Modeling	[Eliza Hotchkiss - NREL/Colorado School of Mines]	
				Alicia Zhao - Center for Global Sustainability, University of Maryland	Energy System Implications of an All-In Pathway to Achieve Beyond 50 Percent Emissions Reductions by 2030
				Daniele Mosso - Polytechnic University of Turin	Integration of geospatial data in a TEMOA energy system optimization model instance
Petroleum Hall	11:15	12:15	Renewables	[Jane Lockshin - NREL]	
				Ashreeta Prasanna - National Renewable Energy Laboratory	Opportunities and Challenges for Community Solar: A Case Study on Community Solar to Increase Renewable Energy Deployment and to Address Energy Poverty in the City of Los Angeles
				Avish Thakral - The University of Texas at Austin	Assessing Large-scale Community Solar Membership Schemes: A Case in Austin, TX
				Lucie Mc Govern - University of Amsterdam	Techno-economics of Perovskite Solar Cells, from Manufacturing Cost to Levelized Cost Of Electricity
Marquez 108	11:15	12:15	Energy Policy	[Daniel Steinberg - NREL]	
				John Bistline - EPRI	Emissions and Energy System Impacts of the Inflation Reduction Act of 2022
				Fangwei Cheng - Princeton University	The impact of the Inflation Reduction Act on the economics of low- and negative-carbon hydrogen and synthetic fuel
				Adam Green - Worley	Keeping the Energy Transition Local: A Socioeconomic Comparison of Provisional Policy Mechanisms to Domesticate Climate Action
Marquez 235	11:15	12:15	Decarbonizing Buildings	[Noah Sandoval - Colorado School of Mines]	
				Will Gorman - Lawrence Berkeley National lab	Can solar+storage keep the lights on? Assessing solar+storage for residential backup power during long-duration power interruptions in the United States
				Jes Brossman (Author: Lixi Liu - National Renewable Energy Laboratory)	A generalized approach to develop residential energy retrofit analysis for US communities
				Anahi Molar-Cruz - EPRI	Unlocking the Regional Potential of Geothermal Energy for Urban Heating
Friedhoff Hall, Green Center	12:15	13:45	Lunch, International Renewable Energy Agency (IRENA) presentation		Planning for the renewable future: electricity demand profiles in the clean energy transition
	13:45	**15:05**	**Parallel Session 2 (4 speakers each for 20 min incl. Q&A)**		
Metals Hall	13:45	15:05	Energy System Modeling	[Juliet Akamboe - Colorado School of Mines]	
				Neeraj Hanumante - The University of Texas at Austin	Calibrating Energy, Mass, and Money Stocks and Flows within the Human And Resources with MONEY Economic Growth Model
				Nazar Kholod - Pacific Northwest National Laboratory	Post-war decarbonization pathways for Ukraine: Results from an intermodel comparison study
				Kamaria Kuling - Simon Fraser University	CLEWs Global: An open source, open data Climate, Land, Energy, and Water systems model generator
				Bob van der Zwaan - TNO/University of Amsterdam	System Costs for Europe of Large-Scale Renewable Energy Imports from North Africa
Petroleum Hall	13:45	15:05	Carbon Neutral Future	[Merve Olmez Turan - NREL]	
				Ya-hsuan Chiu - Industrial Technology Research Institute	Transitioning to Net-Zero Carbon Emissions in Taiwan: A Multi-Dimensional Analysis of Clean Energy Technology Development
				Olivier Durand-Lasserve - KAPSARC	Costs and Opportunities of Net Zero Emissions at 2060 in Saudi Arabia: a General Equilibrium Analysis
				Junling Liu - Harbin Institute of Technology (Shenzhen)	How will China achieve the carbon peaking target?
Marquez 108	13:45	15:05	Electricity System Modeling	[Brian Sergi - NREL]	
				Patrick Brown - National Renewable Energy Laboratory	Decarbonization of the U.S. electricity system under four different transmission expansion frameworks
				Destenie Nock - Carnegie Mellon University	Forgone Comfort - Electricity Insecurity is a Function of Avoided Electricity Use
				Greg Schivley - Carbon Impact Consulting	Constructing Data Inputs for Open-source Capacity Expansion Models with PowerGenome
				Jinxi Yang Yang - Chalmers University of Technology	Adapting to Uncertainty: Modeling Investment Strategies in the Electricity System
Marquez 204	13:45	15:05	Energy Markets	[An Pham- NREL]	
				Anna Alberini - University of Maryland	First the Pandemic, and then What? Volatile Energy Markets, Consumers and Energy Price Expectations
				Geoffrey Blanford - Electric Power Research Institute	Opportunity on the Margin: Electricity Price Formation under Deep Decarbonization
				William Shobe - University of Virginia	Auctions to Procure Negative Emissions at Industrial Scale
				Sania Wadud - The University of Essex	Measuring Multi-Scale Connectedness between Green Bonds and Green Equities Using a Thick Pen Method
Marquez 235	13:45	15:05	Energy Justice/Equity	[Daniel Cardenas-CEO/Chairman, National Tribal Energy Association (NTEA)]	
				Andrew Chapman - Kyushu University	Toward a Framework for the Quantification of Social Equity Impacts arising from the Energy Transition
				Francesco Dalla Longa - TNO	Exploring the Complex Origins of Energy Poverty Using Machine Learning
				Maxwell Fleming (Author: Ben Gilbert - Colorado School of Mines)	Distributional Equity in the Employment and Wage Impacts of Energy Transitions
				Narasimha Rao - Associate Professor of Energy Systems	Heterogeneity in heat pump adoption and implications for justice and decarbonization in the US.
Grand Lobby	15:05	15:35	Coffee Break		
	15:35	**16:55**	**Parallel Session 3 (4 speakers each for 20 min incl. Q&A)**		
Metals Hall	15:35	16:55	Energy System Modeling	[Maxwell Fleming - Colorado School of Mines]	
				Yau-huo Shr - National Taiwan University	The Effect of Air Quality on Citizens' Preferences for Low-Carbon Energy
				Thuy Doan - Fulbright University Vietnam	Are We Building Too Much Natural Gas Pipeline? A comparison of actual US expansion of pipeline to an optimized plan of the interstate network
Petroleum Hall	15:35	16:55	Carbon Neutral Future	[Anne Hamilton - NREL]	
				Loïc De Weerdt - Princeton University	More is better, or is it? Sizing portfolios of real-investment options in the race to net-zero
				Brian Ó Gallachóir (Author: Ankita Gaur - University College Cork)	Dispersed settlement pattern can hinder net-zero transition
				Fabian Neumann - Technical University of Berlin	Energy Imports and Infrastructure in a Climate-Neutral European Energy System
				Christoph Tries - Technichal University of Berlin	Carbon Management Strategies for a Climate-Neutral European Economy
Marquez 108	15:35	16:55	Renewables	[Anthony Lopez - NREL]	
				Ranjit Deshmukh - University of California Santa Barbara	Minimizing biodiversity and social impacts of hydropower, wind, and solar in Southern Africa's low-carbon electricity system

				Christian Hernandez-Negron	A hypothesis for experience curves of related technologies with an application to wind energy
				Owen Roberts - NREL	Exploring the Impact of Near-Term Innovations on the Technical Potential of Land Based Wind
				Bethany Straw - U.S. Geological Survey	An element of realism: Wind energy development and its intersection with American values, laws and processes related to sustaining wildlife populations and natural heritage.
Marquez 235	15:35	16:55	Emerging Technologies	[Abu Shahadat Md. Ibrahim - Colorado School of Mines]	
				Matteo Nicoli - MAHTEP Group - Politecnico di Torino	The role of hydrogen between end-use consumption and synthetic fuels production: a scenario analysis for the Italian case study
				Patrick O'Rourke - (1) University of Maryland- (2) PNNL-JGCRI	Supply and demand drivers of global hydrogen deployment in energy transition scenarios
				Nicolas Fuchs - Fraunhofer ISE	Hydrogen in the German heating sector – An opportunity? Lessons from a bottom-up study on path options for an efficient and socially acceptable decarbonisation
Geology Museum	17:30	19:30	Reception		

Wednesday, June 14th

Room/Location	start	end	Day 2 June 14	Speaker	Title
	8:00	9:00	Check-In, Networking, and Continental Breakfast		
Metals Hall	9:00	10:15	Plenary Session 2 (2 keynote speakers for 30 min each plus 15 min Q&A)	Joe Decarolis (U.S. EIA), Araceli Fernandes Pales (IEA), [Bob van der Zwaan - TNO/University of Amsterdam]	
Grand Lobby	10:00	10:45	Coffee Break		
	10:45	**12:05**	**Parallel Session 4 (4 speakers each for 20 min incl. Q&A)**		
Metals Hall	10:45	12:05	Decarbonizing Mobility	[Noah Sandoval - Colorado School of Mines]	
				Deepak Rajagopal - UCLA and LBL	Implications of energy transition for emissions, public finances, employment and energy imports: The case of electric vehicles in India
				Francesco Sanvito - Technische Universiteit Delft	Is Vechicle-to-Grid a game changer in sector-coupled European energy system in 2050?
				Simone Speizer - Joint Global Change Research Institute, Pacific Northwest National Lab	The role of advanced technologies in global transportation sector decarbonization
				Shane Weisberg - RTI International	Modeling the Effects of North Carolina HB 951 and Advanced Clean Trucking on Local and Statewide Emissions
Petroleum Hall	10:45	12:05	Decarbonizing Buildings	[Jes Brossman - NREL]	
				Eshita Gupta - KPMG	Estimating Latent Electricity Demand at the Household level in Bihar, Eastern India
				Heinrich Matthias - ENPC	Developing housing situations archetypes to apprehend the role of the residential context in the construction of domestic energy consumption: A French case-study
Marquez 108	10:45	12:05	Decarbonizing Industry	[Merve Olmez Turan - NREL]	
				Sonja Sechi - Politecnico di Torino	Energy and emissions characterization of European industrial clusters through geospatial analysis in the framework of Integrated Assessment Models
				Daniela Toribio Ramirez - University of Amsterdam	Accelerating the energy transition in industry: A review of methods to model learning and technological change
				Kira West - Utrecht University / TNO	Effects of detailed industrial and waste disposal sector modelling on interactions between sectors in a national energy system model for the Netherlands
				Deniz Yaylaci - SysEne Consulting Inc.	Reality Check to Operationalize Net-Zero Pathways in Mining
Marquez 204	10:45	12:05	Energy Policy	[Anne Hamilton- NREL]	
				Erin Baker - University of Massachusetts, Amherst	Low carbon energy R&D portfolios that are robust when models and experts disagree
				Aneesha Manocha - Princeton University	Impacts of investment and production tax credit on co-locating storage and variable renewable energy resources
				Christoph Kost - Fraunhofer Institute for Solar Energy Systems ISE	Energy sovereignty in the German transformation pathways of the energy system by 2030 and 2045
				Vera O'Riordan - University College Cork	Policy simulation modelling to inform national carbon-budget pathways
Marquez 235	10:45	12:05	Electricity System Modeling	[Maxwell Fleming - Colorado School of Mines]	
				Haozhe Yang - University of California, Santa Barbara	Decarbonizing China's electricity sector brings significant health benefits but may widen regional disparities in employment
				Nikolaus Houben - Energy Economics Group, Technical University Wien / Berkeley Lab	Day-ahead net load forecasting with self-attention: dealing with meter and meta data unavailability by combining physical and data-driven models
				Wesley Cole - National Renewable Energy Laboratory	Impacts of Spatial Resolution on Power Sector Projections of a Decarbonized Future
Friedhoff Hall, Green Center	12:05	13:35	Lunch, Macro-Energy Systems (MES) Presentation	Erin Baker - Moderator	Macro-scale Perspectives on Energy Systems
	13:35	**14:55**	**Parallel Session 5 (4 speakers each for 20 min incl. Q&A)**		
Metals Hall	13:35	14:55	Energy System Modeling	[Wesley Cole - NREL]	
				Evelyn Wright (Author: Alexander Golub - American University)	Mark-to-model valuation of investment in the energy sector
				Kushagra Gupta - Chalmers University of Technology	Integrated Assessment of City Energy Plans under system uncertainties
				Anna Jacobson - Princeton University	Energy system planning with high temporal resolution using a novel Benders decomposition scheme
				Ina Meyer - Austrian Institute of Economic Research - WIFO	The Role of Secondary Resources in the Austrian Energy Transition
Petroleum Hall	13:35	14:55	Renewables	[Brian Sergi - NREL]	
				Grant Buster - The National Renewable Energy Lab	Spatiotemporal Super Resolution with Generative Machine Learning for Creating Renewable Energy Resource Data Under Climate Change Scenarios
				Anthony Lopez - National Renewable Energy Laboratory	Detail at Scale: Local Wind Plant Optimization for National Wind Potential Assessments
				Ziad Memon - University of Alberta / KTH / TU/e	Biomass' role in Greener Albertan Electricity Generation – A Discussion and Analysis
Marquez 108	13:35	14:55	Emerging Technologies	[Patrick Brown - NREL]	
				Daniel Steinberg - National Renewable Energy Laboratory	Energy, capacity, or negative emissions? Decomposing sources of value for generation and negative emissions technologies in a net-zero electricity system
				Dharik S. Mallapragada (Author: Jun Wen Law - MIT Energy Initiative)	The Role of Negative Emission Technologies in a Net-Zero Electricity and Hydrogen Production System
				Rahel Bekele - Duke University, Sanford School of Public Policy	Understanding energy options in irrigated agriculture and impacts on return: Empirical Evidence from Ethiopia
				An Pham - National Renewable Energy Laboratory	Assessing the Value of Salt Hydrate Thermal Energy Storage for Residential Space Heating in U.S. Cities
Marquez 204	13:35	14:55	Energy Markets	[Juliet Akamboe - Colorado School of Mines]	
				Yimeng Du - Kyoto University	The reasons behind electricity price spike: An Empirical Study on German Day-ahead Electricity Market
				James Hyungkwan Kim - Lawrence Berkeley National Laboratory	Variable Renewable Energy Participation in U.S. Ancillary Services Markets: Economic Evaluation and Key Issues
				Teng Ma - Graduate School of Economics, Kyoto University	Effects of Renewable Power Production in Wholesale Electricity Market in Time of Price Spikes: An Empirical Study on Japan's Electricity Spot Market
				Christina Simeone - NREL	The Bill Alignment Test: Identifying Trade-Offs with Residential Rate Design Options
Marquez 235	13:35	14:55	Electricity System Modeling	[Daniel Cardenas-CEO/Chairman, National Tribal Energy Association (NTEA)]	

				Jolien Despeghel - KU Leuven	Mitigating grid stress using capacity-based network tariffs for households with distributed generation
				Takuya Hara - International Institute for Applied Systems Analysis (IIASA)	A simple method to determine the function representing the relationship between renewable energy usage and storage requirement
				Wilson Ricks - Princeton University	The Role of Flexible Geothermal Power in Decarbonized Electricity Systems
				Xiaoxuan Zhang - Harbin Institute of Technology (Shenzhen)	A Provincial Assessment of Demand Response Potential and its Environmental and Economic Benefits in China's Industrial Sector
Grand Lobby	14:55	15:25	Coffee Break		
	15:25	**16:45**	**Parallel Session 6 (4 speakers each for 20 min incl. Q&A)**		
Metals Hall	15:25	16:45	Carbon Neutral Future	[Owen Roberts - NREL]	
				Jiang Lin - Lawrence Berkeley National Lab	Achieving an 80% Carbon Free Electricity System in China by 2035
				Ricardo Pineda Guzman - University of Texas at Austin	Pathways to Decarbonize the Power Sector of a Developing Country: The Case of Honduras
				Brian Sergi - NREL	Examining Supply-Side Options to Achieve 100% Clean Electricity by 2035
				Jubair Sieed - Research Institute of Innovative Technology for the Earth (RITE)	Analysis of Optimal Transition in Electricity Sector of Bangladesh for Different Growth and Emission Reduction Scenarios
Petroleum Hall	15:25	16:45	Emerging Technologies	[Abu Shahadat Md. Ibrahim - Colorado School of Mines]	
				Julia Hylton - Colorado School of Mines	Biofuel byproduct as a carbon sequestering, strength-improving additive in concrete
				Vinzenz Koning - Utrecht University	Fundamentals of hydrogen production and use in a renewable power system
				Lynn Shiyayo - University of California, Berkeley	Evaluating the impact of battery chemistry and energy mix on the production and use emissions of a range of commercially available electric vehicles
				Hal Turton	Nuclear Energy in Global Transition Scenarios: insights and opportunities from the IPCC Sixth Assessment Report
Marquez 108	15:25	16:45	Electricity System Modeling	[Eliza Hotchkiss - NREL/Colorado School of Mines]	
				Sudha Kannan - Michigan State University	Grid and off-grid electricity impacts on gendered time use in Zambia
				Claudia Kettner - Austrian Institute of Economic Research (WIFO)	Transformation to a Renewable Electricity System in Austria: Insights from an Integrated Model Analysis
				Alice Di Bella - EIEE - CMCC	Impacts of climate change on the Italian power system
Marquez 235	15:25	16:45	Energy Justice/Equity	[Grant Buster - NREL]	
				Andrew Jones - Carnegie Mellon University	Climate change impacts on future residential electricity consumption and energy burden
				Jane Lockshin - National Renewable Energy Laboratory (NREL)	Are Certain Communities Disproportionately Receiving the Benefits of Utility Investments? A Statistical Analysis of Energy Programs and Services in Los Angeles
				Sandra Sattler - Union of Concerned Scientists	On the Road to 100 Percent Renewables: States Can Lead an Equitable Energy Transition
				Eric Scheier - Emergi Foundation	A measurement strategy to address disparities across household energy burdens.
Golden Mill Restaurant	17:30	20:30	Dinner (no arranged seating, open starting at 5pm)		

Thursday, June 15th

Room/Location	start	end	Day 3	Speaker	Title
Grand Lobby	8:00	8:30	Check-In, Networking, and Continental Breakfast		
Metals Hall	8:30	8:45	Workshop Closing Remarks	Geoffrey Blanford, Bob van der Zwaan, Walt Copan	
Metals Hall	8:45	10:00	Plenary Session 3 (2 keynote speakers for 30 min each plus 15 min Q&A)	Destenie Nock (CMU), Bruno Merven (UCT), [Bob van der Zwaan -TNO/University of Amsterdam]	
	10:00	**11:00**	**Parallel Session 7 (3 speakers each for 20 min incl. Q&A)**		
Metals Hall	10:00	11:00	Carbon Neutral Future	[Merve Olmez Turan - NREL]	
				Emilia Chojkiewicz - Lawrence Berkeley National Laboratory	Zero-emission peaker from heavy-duty vehicle fuel cells for a 100% clean Los Angeles by 2035
				Kowan O'Keefe - Center for Global Sustainability at the University of Maryland	Integrated assessment of U.S. net-zero emissions pathways: The role of electrification
				Grace Wu - UC Santa Barbara	Minimizing habitat conflicts in meeting net-zero energy targets in the western United States
Petroleum Hall	10:00	11:00	Electricity System Modeling	[Anne Hamilton - NREL]	
				Molly Hickman (Author: Samuel Miles - UC-Berkeley)	Beyond Access: Measuring Power Quality Issues at 27 Healthcare Facilities in the DRC
				Guillermo Terren-Serrano - University of California Santa Barbara	Resource Adequacy Study in India Deep Decarbonized Electricity System
				Michael Craig - University of Michigan	Identifying Robust Power System Decarbonization Pathways under Deep Climate Uncertainty
Marquez 108	10:00	11:00	Decarbonizing Mobility	[Daniel Cardenas-CEO/Chairman, National Tribal Energy Association (NTEA)]	
				Christine Gschwendtner - Harvard University, ETH Zurich (Switzerland)	The spatial-temporal effect of incentives on electric vehicle charging: An agent-based modeling approach
				Lily Hanig - Carnegie Mellon University	Comparing Electric Vehicle Charging Station Coverage
Marquez 204	10:00	11:00	Decarbonizing Buildings	[Noah Sandoval - Colorado School of Mines]	
				Muhammad Tabish Parray - Norwegian University of Life Sciences	Optimization and scheduling of Behind-the-meter battery storage for Commercial Consumers - Oslo airport case study
				Steven Sergij Salim - TNO and UvA	Achieving Climate Target in European Residential Sector: A Review of Current Policy Target
				Pernille Seljom - Institute for Energy Technology (IFE)	The value and impact of building mass upgrade on the Norwegian energy system transition
Marquez 235	10:00	11:00	Energy System Modeling	[Maxwell Fleming - Colorado School of Mines]	
				Mashael Yazdanie - Empa	The impacts of the informal economy, climate migration, and temperature changes on energy system planning in Accra
				Nik Zielonka - University of Geneva	Spatially-Explicit Probabilistic Projections of Granular Energy Technology Diffusion in Switzerland
Grand Lobby	11:00	11:30	Coffee Break		
	11:30	**12:30**	**Parallel Session 8 (3 speakers each for 20 min incl. Q&A)**		
Metals Hall	11:30	12:30	Electricity System Modeling	[Abu Shahadat Md. Ibrahim - Colorado School of Mines]	
				Hyungsik Choi - Korean Environment Institute(KEI)	Long-duration energy storage or firm electricity technology for zero electricity systems in South Korea: their impacts on energy costs and energy independence
				David Daniels - Chalmers University of Technology (Xiaoming Kan - Chalmers University of Technology)	Six regions one sun one grid: Quantifying the benefits of the global super grid
Petroleum Hall	11:30	12:30	Energy System Modeling	[Merve Olmez Turan - NREL]	
				Angélique Sarre - CIRED	The macroeconomic risks of the transition to a low-carbon economy
				Heeyoung Shin - Seoul National University	The Role of Energy Efficiency Resource Standard in Reaching Korea's Net Zero Goals: Impact Evaluation using Energy System Modeling
				Parvathy Sobha - Luleå University of Technology	Applying a glocal approach to develop local scenarios - Letting SSPs shape global trends impacting the local transition
Marquez 108	11:30	12:30	Energy Policy	[Christina Simeone - NREL]	
				Stephen Bi - Potsdam Institute for Climate Impact Research	Overhaul Overseas Energy Finance to Mobilize Clean Capital and Coal-exit Politics
				Peter Mulder	Energy poverty in the Netherlands at the national and local level: A multi-dimensional spatial analysis

				Christopher Holt - Institute for Policy Integrity at New York University School of Law	Improving Capacity Market Models for Wholesale Electricity Market Design and Policy Analysis
Marquez 204	11:30	12:30	Emerging Technologies	[Juliet Akamboe - Colorado School of Mines]	
				Jay Fuhrman - Pacific Northwest National Laboratory	Diverse carbon dioxide removal approaches could reduce energy-water-land impacts
				Gabriel Mantegna - Princeton University	Establishing best practices for modeling long duration storage in deeply decarbonized energy systems
				Sébastien Pezza - Mines Paris - PSL	Sizing of long duration storage using a new method based on normal distributions and application based on European data
Marquez 235	11:30	12:30	Carbon Neutral Future	[Anne Hamilton - NREL]	
				Yang Ou - Joint Global Change Research Institute, Pacific Northwest National Laboratory	State-level energy-water-land-air implications of the US net-zero goal
				Teagan Goforth - Carnegie Mellon University, National Renewable Energy Laboratory	Assessing the cost, environmental, and equity trade-offs of energy transition pathways in the US

12:30 pm Official end of conference

Additional Information

Location	**start**	**end**	**Day 1 June 13**
Friedhoff Hall	12:15	13:45	IRENA session - Planning for the renewable future: electricity demand profiles in the clean energy transition
Mines Museum	17:30	19:30	Reception
Location	**start**	**end**	**Day 2 June 14**
Friedhoff Hall	12:05	13:35	MES Speaker Series "Macro-scale Perspectives on Energy Systems"
The Golden Mill	17:30	20:30	Dinner (no arranged seating, open starting at 5pm)
Location	**start**	**end**	**Day 3**
Off Campus	14:00	15:30	NREL South Table Mountain Campus Tour
Off Campus	14:00	15:30	NREL Flatirons Campus Tour
Petroleum Hall	13:00	17:00	ETSAP workshop
Metals Hall	13:35	16:00	MES meeting
Location	**start**	**end**	**Day 4**
Petroleum Hall	8:00	17:00	ETSAP workshop