

ERG Newsletter 2013

Energy and Resources Group University of California, Berkeley

Commencement Speaker NRDC's Daniel Lashof



Dr. Dan Lashof is the director of the National Resources Defense Council's Climate and Clean Air Program and is active in the areas of solutions to global warming, national energy policy, and climate science. Dan is involved in developing federal standards and legislation to place enforceable limits on carbon dioxide and other heat-trapping pollutants and to reduce America's dangerous dependence on oil. He has followed international climate negotiations since their inception and is a lead author of the Special Report of the Intergovernmental Panel on Climate Change on the role of land-use change and forestry in exacerbating or mitigating global warming.

Dr. Lashof holds a bachelor's degree in physics and mathematics from Harvard University and a doctorate from the Energy and Resources Group at the University of California, Berkeley. He has taught environmental science as an adjunct professor at the University of Maryland and is the author of numerous articles on climate change science and policy.

ERG 2013 Graduates

Doctor of Philosophy

Joshua Apte
Douglas Bushey
Deborah Cheng
Naim Darghouth
Stacy Jackson
Andrew McAllister

Masters Degrees

Juan Pablo Carvallo Bodelon
Mark Dyson
Heidi Fuchs
Sasha Harris-Lovett
Deepa Shinde Lounsbury
Daniel Sanchez
Maria Stamas
Nikhil Vijaykar
Grace Wu

Undergraduate Minors

Xi Cheng, Felicia Chiang,
Melissa Darr, Steven DeMartini,
Abraham Diaz, Alan Harbottle,
Paul Kauzmann, Chandler Miller,
Sami Oueida, Eric Rubin, Crystal
Sun, Jenny Tang, Elizabeth
Vissers, Arshak Zakarian,
Diana Zheng



The 2013 cohort (clockwise from top): Justin West, Sasha Harris-Lovett, Nikhil Vijaykar, Juan Pablo Carvallo Bodelon, Mark Dyson, Daniel Sanchez, Maria Stamas, Heidi Fuchs, Grace Wu, Deepa Shinde Lounsbury, Ranjit Deshmukh

ERG PhDs 2013



Josh Apte

I came to ERG in 2006 interested in environmental sustainability in low-income countries. In the end, I didn't stray too far from that broad interest. My dissertation investigates human exposure to vehicle air pollutant emissions, with a special emphasis on conditions in developing world megacities. Along the way, I've imbibed deeply from some disciplinary springs, especially environmental engineering and public health. My ERG experience has given me a worldview that would have been impossible to gain in a more traditional program. I've come to treasure the power of a good question and a simple model, and I've gained knowledge of and respect for other academic traditions, especially economics and the social sciences. Like many ERGies past, I've taken my membership in this club as a license to collect passport stamps, with fieldwork in New Delhi, and many memorable ERG adventures in India, Southeast Asia and South America.

I'll remember my time at ERG for the wonderful mentors, colleagues, and friends that I've come to know. I owe a special debt of gratitude to my outstanding dissertation chair, Bill Nazaroff, for his critical eye and unwavering support, and to my other committee members on campus, Rob Harley and Kirk Smith. I am also lucky to count ERG alum Julian Marshall as a mentor, committee member, and frequent co-conspirator. Departed but not forgotten, Alex Farrell and Lee Schipper loom larger-than-life in my memories. For inspiration and support, I am grateful to Meghana, my family, and my dear group of ERGie friends, especially Sintana, Sam, Merrian, Fritz, Lindsey, Anand, and Zoe.

After finishing my dissertation this summer, I will spend the next year as a postdoctoral fellow in the Environmental Energy Technologies Division at Lawrence Berkeley National Lab. Next summer, I plan to join the University of Texas at Austin as an assistant professor in the Department of Civil, Architectural and Environmental Engineering.



Douglas Bushey

Standing on a pyramid of giants. From the broad base, to the narrow top:

ERG: Thank you for letting me find things my own way. For letting me learn more than I ever imagined when I first wandered into Barrows Hall, and for helping me appreciate my extraordinary ignorance. Not for forming me, but for creating an environment in which I could form myself. May you continue to nurture curious idealists long into the future.

Friends: Thank you for a wonderful decade in Berkeley. For days hiking in the Sierras, and nights swimming in the Pacific. For accompanying me on my wandering path through ERG: from ecological economics, to modeling rural electrification systems in

Eritrea, to analyzing international environmental negotiations, and finally to the intersections of science, technology and environmental law. I draw constant inspiration from all of the incredible things you all have done.

Mentors: Isha and Dick, thank you for cultivating a nurturing and safe environment in which I felt free to not know everything that I didn't know. David, thanks for lighting the fire that has interested me for the last seven years, and for working so hard to feed it. Ann, Holly and Kate, thank you for being so giving with your time, guidance, and thoughtful comments. Alex, thanks for everything you gave to me and to ERG.

Family: Mom, dad and Alison, thank you for your constant support - it goes without saying that you're the reason this pyramid exists in the first place. Sikina, thank you for being my motivation, my foil, my occasional coauthor, and my constant companion.

ERG PhDs 2013

Debbie Cheng

In my first few semesters at ERG, two classes made a particularly significant impact on me and altered my academic trajectory: Isha Ray's seminar on Water and Development, and Ananya Roy's survey of Global Poverty. Those two classes helped solidify my desire to work on issues related to water access in the global South, and they provided a rich opportunity for an environmental engineer to become acquainted with the world of social science theory.

For my dissertation research, I returned to my hometown of Manila to examine the politics of water provision in low-income communities, focusing on what I call *micro-networks*—community-built infrastructure that extends the formal, privatized utilities into low-income neighborhoods. But while these communities gain access to safer water, they are also subject to higher costs and heightened disciplinary measures. I thus use micro-networks as a lens for exploring remaining disparities and the limits of water privatization in Manila. I am eager to parlay some of these methods and theories into my next project where, as a postdoc at UCLA's Institute of the Environment and Sustainability, I will be examining the complexities of water management in Southern California.



I am deeply indebted to Isha, Ananya, and Peter Evans for their encouraging, challenging, and generally inspiring guidance. Dick Norgaard and the ERG staff have provided support in so many ways. My intellectual life at ERG has been buoyed and consistently nurtured by Water Group, and its absence from my life next year will leave a void. Aside from the rigor of the academic program, my life at ERG was immeasurably improved by the incisive wit of Christian, Anand, and Liz, with whom I spent so many unforgettable (and cheap and best!) moments, as well as the friendship and wisdom of those who came before me, including Malini, Asher, Mike D., and Carolina. And, of course, ERG has a remarkable ability to draw the most inspiring students, and I am fortunate to have had Anna+Joe, Danielle, Fermin, Zach, Lara, Julian, and so many others as compatriots.



Naim Darghouth

It's been quite the journey with ERG! I started with a Masters on rural electrification in sub-Saharan Africa, where I looked at issues of sustainability for village micro-grids powered by solar and diesel. I dabbled with biofuels from sugarcane in Zambia, then transportation models in the US before landing in the Electricity Markets and Policy Group at Lawrence Berkeley National Laboratory. It is there that I developed an interest in the interactions between solar electricity generation and retail electricity rates. Currently in the U.S., residential solar customers are compensated at their retail rate for the electricity generated by their solar system, with net metering. In my dissertation, I explore how these retail rates may adjust to changing electricity market conditions, and how this impacts the customer bill savings from the solar electricity generated. I will be continuing at LBNL to work on impactful renewable energy policy projects.

I am very thankful for all the opportunities that I was given as an ERGie, and for the academic support I received over the years. I am especially grateful to my dissertation committee: Severin Borenstein (Haas and ERG affiliate), who is chair, Ryan Wiser (LBNL), Dan Kammen (ERG), and Lee Friedman (GSPP), and to my friends and family who have encouraged me through the entire process, without whom I would not have been able to finish. Finally, thanks to all at ERG who have made it possible for me to conduct all the research during my time here!

ERG PhDs 2013



Stacy Jackson

Thank you ERG! I've gotten so much out of my years at UC Berkeley - great friends, intellectual stimulation, knowledge, and terrific memories. Here, I'll share a bit about the last few months of finishing my dissertation ("Nuances of Climate Change Mitigation"). Doing a dissertation is tough no matter how you slice it, but one of the best things about doing a dissertation at ERG is the intellectual independence. I had the freedom to choose and refine my questions and to tailor my dissertation's structure to my subject, with an end result that was far different than it would have been from a more prescribed process.

I thought I knew what to expect from the finish, but the last few months of the dissertation process surprised me. I knew it would be a difficult, taxing, grueling, and intense period (this was true), but I didn't anticipate the positive dimensions. It was surprisingly satisfying to watch the arguments tighten and to observe the deepening of my own thought processes. My late advisor Alex Farrell told me, "We write in order to think," and that phrase rang true. Those last few months of hibernation demanded every bit of discipline, patience, determination, and energy that I could muster, and I was ecstatic when they were over. But the time was also magical, full of unanticipated insights and formative experiences. I want others to know that in the midst of the well-known difficulties, the richness of those final months can be something to look forward to.

Having emerged out the other side, I'm now taking time off to catch up on the rest of life and to decide on next steps. In closing, I want to thank John and Margaret for their wisdom, my committees for their guidance, my husband Keith and my parents for their love and support, my ERG workout buddies Sam, Sintana, & Danielle for keeping me happy and fit, my fellow students in Climate Lab, Harte Lab, and PhD seminar for their insightful feedback, and to ERG as a whole for providing such an intellectually stimulating & supportive community. See you at the alumni events!

Andrew McAllister

My career at ERG began in 1989 as I was considering what to do after Peace Corps. I vividly remember sitting in a hammock at the edge of the rain forest reading a distilled compendium of hundreds of "natural resources" graduate programs; the tiny description of ERG jumped off the page! I trekked over a couple of towns to the nearest telephone, talked to Kate Blake, was totally sold, and came to California for the very first time the following Fall. For a Tennessee boy, this was a big deal.

Led by the Johns (Harte and Holdren), Dick and Mark, ERG (and LBL) provided fresh perspectives and an exciting, voluminous stream of knowledge that both slaked my intellectual thirst and highlighted a whole range of new possibilities for making a positive impact in an increasingly complex world. After the Masters, I worked for most of the following decade on rural energy projects in Bolivia and elsewhere in the developing world, in some very out-of-the-way places. But I couldn't stay away from ERG!



ERG PhDs 2013

Andrew McAllister, continued

Returning to ERG for the PhD was a great decision for personal and professional growth, though accompanied by the perennial ERGie challenge: How to maintain focus in an intellectual Eden? My second career at ERG took, I suspect, an above-average number of twists and turns: several dissertation topics, consulting along the way, meeting my lovely wife Lesley (ERG '05 PhD), hatching a couple of wonderful kids, moving to San Diego and advocating for clean energy there.... Benefitting from invaluable guidance, patience and encouragement from Dick, Dan, Sara Beckman and Alex Farrell (as well as sympathetic support from Lee, Jane, Bette, Donna, Sandra, and Kay), my dissertation examined the burgeoning California market for residential rooftop solar generation and the energy consumption patterns of its participants. I analyzed the underpinnings of this market and its potential future directions, developed a more complete understanding of consumer choice and the presence of energy “take-back” around solar adoption, and highlighted some of the pertinent issues and policy challenges going forward.

In April 2012, Governor Brown appointed me to the California Energy Commission where, in part, I serve as lead commissioner for energy efficiency. I feel incredibly fortunate to be in the Golden State working in earnest on issues of critical importance and in areas of tremendous innovation. ERG provided the original inspiration, and remains a critical community. In return, my enduring gratitude: Thank you!



ERG Students in Mexico on a summer research / biodigester installation project.

ERG Student Scholarships and Awards

National Science Foundation

Zoe Chafe
Michael Cohen
Luke Dodds
Mark Dyson
Jessica Goddard
Pierce Gordon
Sasha Harris-Lovett
Morgan Levy
Erica Newman
Autumn Petros-Good
Yang Ruan
Jalel Sager
Daniel Sanchez
Laura Schewel
Imran Sheikh
Michaelangelo Tabone
Cleo Woelfle-Erskine
Grace Wu

EPA- STAR

Peter Alstone
Joshua Apte
Lara Cushing

Link Energy Fellowship

James Nelson
Ranjit Deshmukh

UC Berkeley Fellowship

Michael Cohen
Mark Dyson
Grace Wu

UC Chancellor's Fellowship

Nkiruka Avila
Pierce Gordon
Daniel Sanchez

Dissertation-Year Fellowship

Deborah Cheng

Foreign Language and Area Studies Fellowship

Andrew Crane-Droesch

Berkeley Center for African Studies Rocca Scholarship

Zachary Burt

Outstanding Graduate Student Instructor Award

Fermin Reygadas (ERG)
Joshua Apte (CEE)

Graduate Opportunity Award

Lindsay Holiday
Monica Testa

I-House Gateway Fellowship

Dimitry Gershenson
Veronica Jacome
Ida Sognaes

Philomathia Graduate Fellowship in Environmental Sciences

Joshua Apte
Danielle Christianson

Rosalie M. Stern Continuing Education Award

Laura Moreno

Graduate Division Summer Grant

Gang He

Albert Newman Fellowship

Anna Kantenbacher

LBNL ITRI Rosenfeld Postdoctoral Fellowship

Josh Apte

Institute for New Economic Thinking Young Scholar Award

Gang He

International Institute for Applied Systems Analysis Young Scientists Summer Program

Morgan Levy

Consejo Nacional de Ciencia y Tecnología (CONACYT) Fellowship

Juan Pablo Carvallo Bodelon
Diego Ponce de Leon Barido

David L. Boren Fellowship

Froylan Sifuentes

Robert Bosch Foundation Fellowship

Imran Sheikh

ERG Master's Degrees 2013



Juan Pablo Carvallo Bodelon

Coming to ERG was far more than continuing studies or a decisive step in my attempt to shift careers. It was the beginning of an adventure, which included moving to a new country, leaving friends and family far away in Chile, and learning from a different culture, in a new language, with diverse customs and views of the world. And of course, doing that as the family we are with my wife Tamy and our two kittens Ema and Lukas. An idea that came up by the end of 2009, took shape through a Fulbright Scholarship in 2010, and turned into a project with Dick's call on February 7th 2011, I can firmly say that it was worth being called an adventure. Totally and completely worth it.

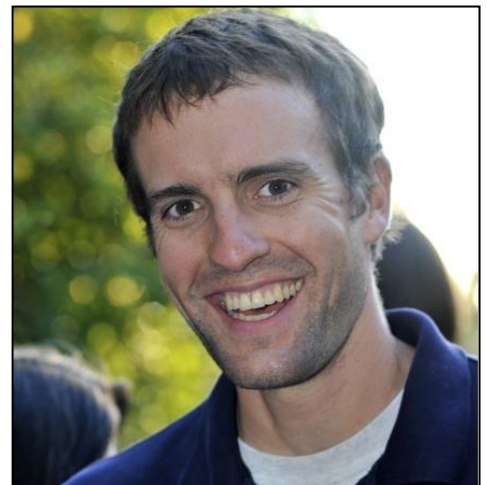
It feels right not to define ERG for what it is, but of who compose it. I was blessed with the most wonderful companions I could have asked for this adventure, my 2011 Cohort, and we joined a group of amazing students and researchers, each unique in its own way, with their motivations and passions, fears and doubts. But the maze of interdisciplinarity shall not be navigated alone and ERG has understood this well. Professors teach as much out of the classroom as they do inside, always welcoming to hear ideas, questions, and projects; always open to give sound advice in academia and life. Our staff strives to make sure we can keep our heads in research and study, juggling through administrative constraints, truly caring for our overall well-being.

For us, the adventure will keep going a little more. My questions on the policy and politics of renewable energy joined with the technical aspects that underpin them found fertile ground in ERG and its affiliates, which prompted an "extension" of my initial MSc degree objective. I will continue trying to understand how developing economies can prosper with equity and sustainability, how to challenge the current tenets of growth and consumption, and nurture my spirit and soul in the process.

Mark Dyson

I grew up in Minnesota and studied geology and computer science at Carleton College. After doing geology research for a year after graduating, I moved to Colorado to work at Rocky Mountain Institute, helping with research and consulting projects in energy efficiency and renewable energy analysis. After three years at RMI I came to ERG to gain more perspective on energy issues in general, as well as gain practical experience with different analytical methods.

At ERG my work has focused on analyzing the potential to mitigate renewable energy variability by controlling the timing of electricity demand. I'm grateful to have learned so much from all of my fellow students and the Berkeley faculty during my time at ERG, both within and especially outside of my chosen area of specialty.



ERG Master's Degrees 2013



Heidi Fuchs

Sometimes I feel a soupçon of regret that I pursued my undergraduate degree at an open-curriculum liberal arts college, and gave my folly an encore by attending ERG. The amount of academic freedom in both places is staggering, and maybe shouldn't be entrusted to deliberative generalists like me. At these times, the relative certainty associated with being an expert in some minute sphere of knowledge is alluring. Yet even standing on the precipice of a wide-open professional life, I suspect the benefits of ERG's approach will reveal themselves in due time. The experience of crossing disciplines, of being the odd duck in a sea of engineering or economics students, as well as the penchant for problem-based and nuanced analysis that characterizes ERG, will be of use in a dynamic world with ever-more-complex problems.

I am also not immune to the feeling mentioned by David Wineland, one recipient of the 2012 Nobel Prize in physics; as a Cal undergraduate, "Berkeley was a frightening, impersonal place to me at the time, but I loved it and the challenge it presented." One of the most remarkable facets of ERG is its unshakable sense of community, which goes a long way to de-impersonalize our time here. Biweekly lab group meetings, group problem-solving sessions puzzling over cylindrical cows or vehicle miles traveled, impromptu, friendly interaction with faculty and staff, and living in a south Indian house with ERGies and ERG friends while commiserating over the vagaries of summer field research all contribute to a sense of being in this together while working toward something larger than ourselves. I feel very lucky to have spent two years here with all of you, and will carry this sense of camaraderie with me.



Sasha Harris-Lovett

I feel so lucky to have had the opportunity to spend the past two years as a member of the ERG community. I have been challenged and supported as a student here, whether I was helping design an exhibit for the Lawrence Hall of Science, tackling engineering classes, exploring my interest in science writing, or diving into historical archives to research water reuse. I am inspired on a daily basis by the gumption that my fellow ERG students have to make positive change in their communities and in the world, and the motivation they have to develop any skills they need to make it happen.

My favorite things about ERG include being surrounded by a fun, diverse, caring, intelligent, motivated, and grounded student body; having too many good options of things to study, lectures to attend, and projects to take on; being given the privilege and responsibility of forging my own path through UC Berkeley and through graduate school; and getting the chance to keep learning new skills and different ways of thinking. My time at ERG so far has been like sitting down to a massive banquet, that stretches out farther than I can see in any direction. Delicacies and delight abound, and the trick is choosing what to eat in a finite time at the table. It's a very special opportunity, though sometimes overwhelming, and I hope that I can use what I'm gaining to help other people around the world and in the future. Thank you to the many people who have made this experience a good one for me, including the amazing ERG student body and staff, professors in both ERG and environmental engineering, and my family.



Deepa Shinde Lounsbury

ERG was the first place where I felt truly at home. Throughout my years working in finance, I had never really fit in. I had started to believe that everyone carefully applied filters to any critical thoughts on the status quo and tamed facial expressions most of the time. ERG taught me that we can all rethink the world and say something about it!

These past two years have been both challenging and incredibly broadening. I came here excited to learn “how things work,” particularly our country’s energy and water systems, so I ran around campus taking all sorts of classes inappropriate for my non-technical background. I struggled through engineering courses without having fulfilled the prerequisites and somehow, with the help of a few very patient members of my cohort (especially Grace and Sasha), turned in weekly problem sets that initially seemed impossible. Now, I’ve realized that really understanding how things work will take a lifetime, but ERG at least started me on that path and gave me confidence in my ability to comprehend complicated systems (and I’ve also discovered that so many things are more complicated than they might first appear).

At ERG, I learned how to explain all things energy in front of a classroom (with a wonderful set of GSI-partners: Maggie, Rebekah, Fermin, and Luke), and my master’s project on rural microgrids sent me on a “microgrid safari” (as Dan Kammen calls it) through India and Borneo with JP. I have so much to be thankful for here: insightful professors who opened my eyes, a campus teeming with people who care, a city so beautiful and alive, and friends who will last a lifetime. As I go out into the real world, I will try to retain the holistic ERGie way of looking at the problems we need to solve. I am inspired by the passion, intelligence, and big-heartedness of the ERG community and thank you all for making these two years better than I could have imagined.

Daniel Sanchez

ERG is a place of wonderful contradictions: we are expected to become interdisciplinary scholars in a world of specialization, and we are expected to chart this path into the unknown largely independently. Yet, ERG itself is supportive, small (unlike our interests), and cozy. Our academic interests are boundless and political, yet we encourage balance, tolerance, and experimentation.

I’ve gained so much from ERG: an understanding of energy technology, policy, and economics, climate change, law, finance, modeling, water, behavior, and everything in between. What’s more, I’ve found great mentors, great friends, and the endless offerings of the entire Bay Area.



I have no doubt that ERG was the best possible place for my education. My background is in Chemical Engineering, but my passion is for systems-level energy research and policy. While at ERG, I’ve focused on bioenergy, climate policy, and electricity sector modeling. I’ll be returning in the fall for my Ph.D., but will be spending this summer working for ARPA-E in Washington, DC, where I’ll focus on technology commercialization. Many thanks to ERG, my family, and friends for these wonderful opportunities.

ERG Master's Degrees 2013



Maria Stamas

I feel honored to have had ERG be a part of my life for the last three years. Being in the company of ERG students and faculty made attending law school an infinitely better experience. Every time I stepped into an ERG setting, I felt refreshed by the level of support, knowledge, curiosity, humor, and overall good-naturedness of my peers.

ERGies have provided me with a consistent source of inspiration—both academically and personally, and have also become some of my closest friends in the Bay Area. My experience with ERG classes and projects has opened my mind to a variety of disciplines I only had fleeting awareness of prior to grad school. Although this breadth of knowledge—and the accompanying pathways it opened—proved challenging at times, I know I am stronger today because of it. I also know that my time at ERG will only continue to inspire and inform my next steps. I am sincerely grateful for having had the opportunity to be a part of the ERG community.

Nikhil Vijaykar

When I came to ERG, I was all about decentralization, democracy and distributed energy. Yet somehow, two short years later, I turned in a Masters Project focused on water systems, and advocating for consolidation. Such is the universe. The ERG culture is also to blame. It really did force me to dispense of the boundaries I operated within. My passion is Environmental Justice, and my frame of reference for understanding EJ problems was the law. ERG helped me approach the field with totally new perspectives.

But what exactly is it about ERG that pushes students to unlock every last room in their brains? Here's a couple explanatory variables I'd like to offer to explain the ERG effect (paper forthcoming).

The first is the fact that we had an entire class dedicated to interdisciplinarity scheduled at 8am on Friday and Monday mornings. I don't know if I'll ever truly be able to understand the lasting impact this had on me - but I plan on using human psych, economics and ethnomusicology methods in order to do so.

The second is the wealth of information, the love and care we received from Toby, Kay and Sandra. Emails from Sandra helped me balance my overwhelming nerdiness with a whole range of other opportunities in Berkeley. While writing this sentence, I received 3 emails from Sandra.

The third is my graduating class. There wasn't a day that I didn't feel inspired around this cohort, and I'm incredibly lucky to have spent two years learning from them.

The ERG experience has been more than what I could have wished for. Thank you to the faculty and staff, and congratulations to the graduates!



Grace Wu

I arrived at ERG confidently upholding a fairly rigid worldview—filled with precise definitions and shoulds and should-nots regarding valuable work, good writing, robust research, and the sacredness of deadlines. ERG has completely flipped this paradigm upside down—in a brilliant way. The ERG experience has been a soul-searching, challenging, and ultimately rewarding exercise in autonomy. I have come to see the ERG spirit as being first and foremost characterized by the freedom (and corresponding trust and respect) to probe the thing(s) stuck in one's crawl by providing a safe space to dream, doubt, experiment, realize, and reflect. It has been an immense privilege to be surrounded and continually inspired by students and faculty whose work and community contributions so beautifully reflect their own diverse life paths, those who have stepped and continue to step “to the music which [s]he hears, however measured or far away” (H.D. Thoreau).



I came to ERG inspired by environmental historians who demonstrated that our current state of affairs and the dismal state of the environment were not inevitable—showing not only that multiple choices existed at every crossroad, but that many of the crossroads themselves were products of human choices, active or passive. Thus, I arrived at ERG empowered with an optimism and passion that new and positive relationships between humanity and nature were possible, if only we could enhance the role of science and analysis in informing these new relationships. After working on projects as diverse as diesel black carbon and land use impacts of electricity infrastructure, I now revisit this initial goal, evaluate its merits, feasibility. I find that despite the many things that have changed about my worldview and recognizing all the stymieing complexities involved in trying to conduct policy-relevant research, this deep-seated vision of the “good society” still being realizable has not changed. While the historical perspective has tended to fade from lack of exposure, I have found similar optimism resounded in various ways amongst the ERG community. And it is this optimism that comes not from historical perspective, but diverse personal—ERGi—perspectives, that has kept me afloat all these days. I only hope that I can one day return, in some meaningful form, the opportunities, support, and inspiration that I have found in great abundance here at ERG from its current and past students, faculty and staff.



*Deepa Shinde Lounsbury
and Juan Pablo Carvallo at
a microgrid project in
Patna Bihar, India*

ERG Faculty Updates

Duncan Callaway is an assistant professor in ERG. He teaches courses in electric power systems ("the grid") and energy efficiency in buildings. His research focuses on these topics as well. Right now he and his students are focusing on how to make the grid better equipped for wind and solar generation, and how in this era of "big data" we can identify energy efficiency opportunities without leaving the comfort of our own office chairs. Stimulating research, teaching and student collaborations notwithstanding, his highlight for the year was the arrival of his son Benjamin in November, who has already been to a few faculty meetings and job talks (he slept through them all, go figure).

Harrison Fraker is completing his first year as Chair of ERG. He helped lead a successful External Review of the program, is working to close two important faculty searches for ERG and working with students to improve their ERG space. He will be working with faculty and students to update ERG's strategic plan and will be launching a targeted fundraising effort in the fall to raise funds for student support.

In addition, Harrison has continued to advise thesis students at Lund University in Sweden twice a semester as the Ax:on Johnson Visiting Professor in the Sustainable Urban Design (SUDes) Masters program. His book entitled: "The Hidden Potential of Sustainable Neighborhoods" is in the final phases of publication at Island Press and is due out later this summer. While Chair, Harrison has continued to teach: ED201 to Masters of Urban Design students in Fall 2012 and Arch 100B to undergraduate Architecture majors in spring 2013 in the College of Environmental Design.

John Harte directed his research this year on two topics: advancing our understanding of how climate and ecosystems interact and refining, extending, and applying his information-theory-based ecological unification. For a week last fall he was Visiting Professor of Ecology at Umea University in Sweden, where he taught a mini course on ecological theory. During the year he gave invited talks on his research at UCAR in Boulder, the universities of CT and AZ, the Santa Fe Institute, the annual British Ecological Society Conference, LBNL, and most illustriously, ERG. In February he organized and hosted an international workshop at Berkeley on theoretical ecology. He continues to teach the core ERG environmental science course, "Quantitative Aspects of Global Environmental Problems" and to interact with various public groups and the media on climate change, appropriate energy policy, and the protection of biodiversity. Currently he is trying to figure out how to write a book for the lay public on information theory and ecology.

During the first half of 2013 **Dan Kammen** has been appointed by California Utilities Commission President Mike Peevey to serve on the Board of Directors of the \$170 million/five year California Energy Systems-21st Century Institute, and led a research program on modeling tools for the low-carbon future of California for the California Energy Commission and the California Air Resources Board. More information at <http://rael.berkeley.edu/switch> and <http://coolclimate.berkeley.edu>.

He was also appointed by Secretary of State John Kerry to continue a role he started in 2010 for then Secretary Clinton as an Energy and Climate Partners of the Americas Fellow; traveled to Abu Dhabi, Austria, Ethiopia, Germany, Kenya, Rwanda and South Sudan on distributed energy and mini-grid research and conference trips, and led chapters and published papers for UN Secretary General Ban-ki Moon's new Sustainable Energy for All Institute.

Cathy Koshland and Donald Lucas have received the Adel Sarofim award at the 13th International Congress on Combustion By-Products and Their Health Effects Conference. Additionally, Cathy published two papers this year: Crosby J, Lucas D, Koshland CP (2013). "Fiber Optic Based Evanescent Wave Sensor for the Detection of Elemental Mercury Utilizing Gold Nanorods, Sensors & Actuators: B Chemical". May 2013. James, JZ, Lucas D, Koshland CP (2013). "Elemental Mercury Vapor Interaction with Individual Gold Nanorods." Analyst. April 2013.

Richard Norgaard taught the courses titled: *Ecological Economics in Historical Context* and *Energy Economics* and led the teaching of ERG's course on Interdisciplinarity. He serves on the Intergovernmental Panel on Climate Change and chairs the Delta Independent Science Board of the State of California. He also serves on the Board of Directors of the New Economics Institute, an effort to build broad support for a sustainable, equitable economy. Look for his forthcoming book authored with John Dryzek and David Schlosberg titled *Climate-Challenged Society* to be published by Oxford University Press in November. He looks forward to retiring in order to make progress on two solely authored books: one on "economism" and one on how we must learn to "collectively understand".

Isha Ray and her students continued to work on problems of water access around the world (India, Tanzania, California's Central Valley...). She taught a new class on Community-Driven Development for the just-launched Master's in Development Practice Program. She was invited to present her research results in London (UK), Washington DC, New Delhi (India), Barcelona (Spain) and Delft (The Netherlands). She was especially pleased to run into several former ERGies at the Barcelona workshop! (see picture)



Margaret Torn co-led the Masters seminar for this year's graduating class and congratulates them all on a job well done! When not at ERG, she co-heads the Climate and Carbon Sciences Program at Berkeley Lab, measuring and modeling ecosystems and climate change. This past year Margaret embraced the challenge of leading the AmeriFlux Network of 100 ecosystem sites across the Americas. She also enjoyed working above the Arctic Circle on greenhouse gas emissions from thawing permafrost, although the results were worrisome. Margaret published 14 peer-reviewed papers with collaborators in ERG and across the US and Europe, spoke to a UN leadership group, and coordinated reviews for the Intergovernmental Panel on Climate Change.

ERG Alumni News 2013

Sam Arons (MS 2007) I recently switched over from Google's internal sustainability team to Google's datacenter energy team, focusing on procuring renewable energy for our operations. It's been a fun transition and there's lots to learn! Hopefully at some point I'll be able to report back that we are 100% renewable-powered, but we still have a little ways to go in order to get there :) Otherwise, I got married last August and am still living in San Francisco.

Lisa Dreier (MA 2002) continues working as Director of Food Security and Development Initiatives at the World Economic Forum, where she leads the organization's work to build multi-stakeholder collaboration and action on food security and agriculture issues. This includes work with the G8 and G20, and a global New Vision for Agriculture initiative facilitating national-level action platforms in 12 countries across Asia, Africa and Latin America. While technically living in NYC, Lisa spends a lot of time on the road ... but not enough in California!! She welcomes any ERG alums to visit and use her apartment as a "NYC crash pad."

Jennifer Dunne (PhD 2000) As of Feb. 1, 2013, Jennifer Dunne is Chair of Faculty and Vice President for Science at the Santa Fe Institute. Any ERGies interested in complex systems science or who are passing through Santa Fe, NM, are welcome to get in touch with her at jdunne@santafe.edu.

John D. Elliott (Ma, 1998) Lawrence Berkeley National Laboratory (Berkeley Lab) has named John D. Elliott as its first Chief Sustainability Officer, a new position that underscores the importance of energy efficiency and sustainable practices within the same institution where scientists have pioneered resource-sparing technologies for decades. In his new position, reporting to Deputy Laboratory Director Horst Simon, Elliott will provide organizational and technical leadership for Berkeley Lab's overall sustainability operations and serve as its main spokesperson on such issues. His appointment is a recognition that sustainability goals are of utmost importance at Berkeley Lab, which in January selected UC's Richmond Field Station site as the location of its planned second campus.

Steve Fetter (PhD 1985) returned to the University of Maryland in August 2012, after working 3.4 years for John Holdren in the White House Office of Science and Technology Policy, most recently as director of OSTP's environment and energy division. He is now Associate Provost at the University of Maryland.

Rafael Friedmann (PhD 1996) continues to work as an Expert Strategic Analyst for PG&E's Customer Energy Services Evaluation team. He will be Co-Leader of Panel 2 at the upcoming ACEEE Summer Study Conference. In the past year, he has led research on industrial and agricultural customers' energy efficiency options and markets. He has written extensively on energy efficiency evaluation policy, frameworks and practices. He has consulted on energy efficiency and renewable energy implementation and evaluation in Chile, Canada and China.

Patrick Gonzalez (PhD 1997) The National Academy of Sciences selected Patrick Gonzalez (Ph.D. 1997) for a second time as a Kavli Fellow. The Academy invited Patrick to organize a session "Ecological Impacts of Climate Change" for the Fifth Indo-U.S. Frontiers of Science symposium in Agra, India in April, 2013. The Academy had previously selected Patrick to speak at the 2011 Kavli Frontiers of Science symposium in Indonesia. Patrick was also featured in the Fall 2012 issue of Breakthroughs, the magazine of the UC Berkeley College of Natural Resources http://nature.berkeley.edu/breakthroughs/fa12/spotlight_patrick_gonzalez.

Michael Kiparsky (PhD 2010) We returned from our three year sojourn in Idaho, and it's damn good to be back home. I've settled in at Berkeley Law, of all places, helping to start the new Wheeler Institute for Water Law & Policy. A great change for me, and it's proving to be fun and challenging so far. Working with our past Chair Dan Farber, ERG Affiliate Holly Doremus, and the other great people at CLEE is as rewarding as you might expect. Bree has joined the ESPM faculty, and the kids are enjoying year-round access to their trampoline, not to mention old friends. Would love to connect and collaborate with ERG friends old and new.

Jonathan Koomey (PhD 1990) Jon's latest book, Cold Cash, Cool Climate: Science-based Advice for Ecological Entrepreneurs, came out on February 15, 2012 (<http://www.analyticspress.com/>). He's also exploring the implications of the six-plus-decades-long trend in the energy efficiency of computing (doubling every 1.5 years, as shown in an article in the IEEE Annals of the History of Computing in 2011) by documenting the most interesting recent technological and business innovations that rely on that trend. If you have ideas for cool companies or cutting-edge research labs doing work in this area, please contact Jon at <http://www.koomey.com>.



Julian Marshall (PhD 2005) received tenure at University of Minnesota, in the Department of Civil Engineering. Julian's research is on exposure to air pollution, including topics such as urban design, biofuels, and cookstoves. He co-directs the Acara program, a series of classes and incubations for students

engaged in social entrepreneurship to address environmental challenges in the US and India. Julian looks forward to reconnecting with ERG during Fall 2013, when he and his family will be spending sabbatical at Berkeley.

Nicholas Martin (MS 1999) continues to serve as Chief Technical Officer of the American Carbon Registry, which has recently been approved by the California Air Resources Board as an offset project registry for offset projects in the California cap-and-trade market. He has been enjoying frequent trips to Sacramento in this capacity. Nick resides in Saint Paul, MN with his wife Rachel and kids Frances (8) and Earl (6).

Neo Martinez (PhD 1991) just began his new position as an Associate Professor of Ecology and Evolutionary Biology at the University of Arizona this semester. He will retain his position as Director of the Pacific Ecoinformatics and Computational Ecology Lab in Berkeley.

Bruce Nordman (MA 1990) continues to try to reinvent power distribution within buildings. Any building type. Any country - industrialized or developing. Key concepts: "Local Power Distribution" and "Nanogrids".

From website: Bruce Nordman is a researcher in the Building Technology and Urban Systems Department, with principal focuses on energy use and savings in electronics and in networks. He works with the technology industry and standards organizations to develop new technologies to save energy in electronics and networks, and is often invited to speak domestically and internationally on this topic. Recently he helped launch a process to make Ethernet technology much more energy efficient, and another one to enable networked devices to sleep without sacrificing network connectivity. He also works on low-power mode energy consumption, on user interface issues for electronics power control and lighting, and on miscellaneous energy use, and on developing network architecture concepts for future building networks.

Gwen Ottinger (PhD, 2005) is Assistant Professor in the School of Interdisciplinary Arts and Sciences at the University of Washington-Bothell. This year she published a book, "Refining Expertise: How Responsible Engineers Subvert Environmental Justice Challenges" with NYU Press. (See http://nyupress.org/books/book-details.aspx?bookid=8052#.USN_sGdfKSp). The book takes a close look at one refinery-adjacent community in Southeastern Louisiana, examining especially the fate of residents' claims that emissions from the refinery were making them sick. It shows how refinery scientists and engineers' claims to the contrary prevailed--not because of better information, but because of deeply ingrained ideas about what it means to be a good neighbor and responsible citizen.

Thomas Sikor (PhD 1999) has been appointed Professor of Environment and Development at the University of East Anglia in the United Kingdom as of 1 August 2012 and came back to ERG in March 2013 to speak on the 'Justices and Injustices of REDD+' at the Wednesday Colloquium.

Chad White (PhD 2008) started an assistant professorship in sustainability at Philadelphia University.

Harald Winkler (MS 1998) has become (from April 2013) Director of the Energy Research Centre at the University of Cape Town. He has been at ERC since 2000, and his research areas continues in climate change mitigation, but will now also oversee ERC's work that addresses energy and poverty, modeling, efficiency and renewables. Harald has an international reputation as a researcher into climate policy, and is highly respected for his work. More information on ERC is at www.erc.uct.ac.za

Maggie Winslow (PhD 2002) After teaching at Presidio Graduate School for nine years, I have now taken a faculty position in the Masters Program in Environmental Management at USF. I will be starting this fall.



ERG gives Dick Norgaard a sartorial salute at the annual ERG Talent Show

A Fond Farewell to Dick Norgaard

Energy and Resources Professor Richard Norgaard announced last fall his retirement at the end of this school year. Dick has been truly central to the existence and success of ERG from the early 1970s, when ERG was a mere gleam in his and other's eyes, to the present. For decades he has been at the core of ERG's successful efforts to become the best fermentation tank in the world for the brewing of scholar-activists. Yet paradoxically, this central player on the ERG team is most at home on the edge. He likes to say that he is "an economist by training but not by conviction," This hints at the academic edge he not only inhabits, but actually created as a vital academic field of study: the boundary between economics and ecology writ large.

Cohorts of ERG students have benefited enormously from Dick's wise council as a mentor, from his insights into the historical, philosophical, and cultural dimensions of the human dilemma, from his generosity in opening his home (which curiously is also on an edge) for ERG social events, and from their introduction to river rafting by this master of the craft.

The entire ERG community wishes the very best for Dick as he continues his explorations, both scholarly and we hope riparian, in what he might call retirement but which we know will really be a continuation of an enormously inventive and productive career.

Thank You!