

# ENERGY & RESOURCES GROUP

COMMENCEMENT | MAY 12, 2017

310 Barrows | University of California, Berkeley | [erg.berkeley.edu](http://erg.berkeley.edu)

## CONGRATULATIONS ERG GRADUATES!

**Doctor of Philosophy:** Nate Aden, Felipe Castro Altamirano, Ranjit Deshmukh, Carla J. Peterman, Joachim (Jo) Seel, Imran Sheikh

**Master's Degrees:** Dan Aas, Dennis Vahid Best, Anna Brockway, Rebecca Coates-Maloon, John Paul Dees, Stephen Jarvis, Seigi Karasaki, Jessie Knapstein, Jose Daniel Lara, Eli Ben-Ruth Lazarus, Niklas Lollo, Brittany Shaw, Julia Szinai, Valeri Nicol Vasquez

**Undergraduate Minors:** Jack Alperstein, Vanessa Chi, Jordan French, Anuja Godbode, Amy Huynh, Alexandra Lalor, Natalie Mezaki, Kevin Ong, Karina Redding, Vincent Spadone, Nicole Walter, Evan Wilson, Natalie Zhang



ERG Master's Graduates 2017

## ERG ALUM DIANE REGAS TO SPEAK AT COMMENCEMENT

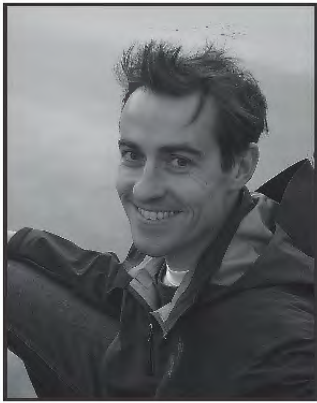
EXECUTIVE DIRECTOR, ENVIRONMENTAL DEFENSE FUND



**A**s the Executive Director of the Environmental Defense Fund and a lifelong environmental advocate, Diane develops the organization's strategy and designs solutions that let nature and people prosper. Diane expanded the scope and ambition of EDF's strategic plan, and Diane's expertise and leadership is guided by a strong commitment to scientifically and economically smart solutions that earn the support of people across the political spectrum. Together with EDF President Fred Krupp, Diane guides the organization towards getting results that reward those who innovate in favor of a clean and healthy environment. Prior to joining EDF in 2006, Regas spent 20 years developing and supporting scientifically sound bipartisan solutions to environmental challenges at the Environmental Protection Agency, where she managed billions of dollars and thousands of employees.

Diane graduated from UC Berkeley in 1987 with a Master of Science (MS) degree from the Energy and Resources Group and a Juris Doctor (JD) from Boalt Law School. Her ERG thesis title was "Arctic Haze: Characteristics, Sources and Institutional Options." Diane has remained engaged with ERG by attending events, presenting at ERG colloquium, and recently has been an integral part of the ERG alumni network (ERGAN).

# ERG PHD RECIPIENTS



## NATE ADEN

DISSERTATION: TAKING THE MAN OUT OF MANUFACTURING: DRIVERS AND COMPONENTS OF INDUSTRIAL SECTOR LOW-CARBON TRANSFORMATION

**A**fter years of living by Mark Twain's sage advice to "Never put off till tomorrow what you can do the day after tomorrow," I'm biting the bullet and finishing my ERG PhD. These times provide temptation to linger in the intellectual upwelling that is the ERG community, but other work needs to be done and life goes on! One of the things I've always appreciated about ERG is its tolerance for working students such as myself. The arrangement was fairly common when I was at LBL, but I took it to a new level when I moved on to the World Resources Institute, where I've put my ERG knowledge to practice with companies and policymakers.

## FELIPE CASTRO ALTAMIRANO

DISSERTATION: ON RATE REGULATION IN MODERN ELECTRICITY SECTORS

**T**he years I spent in Berkeley were a transformative experience. I feel very fortunate to have had the opportunity to interact with people as talented and intelligent as those who populate the UC Berkeley campus. I leave this community with a high regard for knowledge, a profound admiration for the contributions of past scholars, and with the conviction that honest and thorough thinking is crucial in solving the most pressing problems of our time. For all these realizations, I am deeply indebted to the students and professors at Berkeley, who never ceased to provide valuable insights during all these years. Among these exceptional people there is a group that stands out: The Energy and Resources Group. Being part of this department opened for me a window to a different way of advancing knowledge. One in which all disciplinary approaches are appreciated and welcomed; one in which researchers with very different backgrounds find common grounds to collaborate; and one in which rigor comes along with encouragement, instilling a passion for scholarly work. I have no words to express enough gratitude to ERG for providing these lenses, with which I see the world as a more complex but at the same time colorful place, full of research challenges and opportunities; a world that today more than ever I feel eager to explore and learn about. Thanks UC Berkeley, thanks ERG and thanks to all of you with whom I had the joy of sharing remarkable moments during these enriching and transformative years.



## RANJIT DESHMUKH

DISSERTATION: INDIA'S LOW CARBON ELECTRICITY FUTURES

**T**he beauty of ERG is that one can dream of an ambitious, seemingly impossible research idea, yet find support among faculty and fellow students, and somehow give life to a project that has the potential to enable positive change in the world. ERG taught me to dream and turn that dream into reality. Without ERG's support, I would not have been able to pursue research in far flung countries in Africa and Asia, or collaborate with diverse organizations and researchers. Without ERG's teachings, I would not have been able to bring multi-disciplinary approaches to my work on energy transitions in developing countries. Without ERG's community, I would not have been able to learn and appreciate so many different perspectives. In these chaotic and politically charged times, where the debate is not between rational ideas representing different viewpoints, but where science itself is under threat, the work and mission of ERGies is ever more important. I am proud to be part of the ERG community. I am honored to have been advised by Duncan Callaway, Severin Borenstein, Dan Kammen, Michael Milligan, and Meredith Fowlie, and I thank them for being so generous with their time. Kay Burns has been ERG's rock that we all lean on, and I am so thankful to her. My family and friends have shown tremendous patience and support as I wandered and stumbled through life seeking my passions and interests, and for that, I am immensely grateful. ERG has given me three wonderful gifts – a community, a doctoral degree, and last but not the least, an amazing life partner. Thank you!



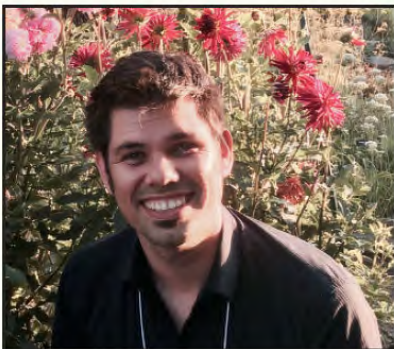
# ERG PHD RECIPIENTS

## CARLA J. PETERMAN

DISSERTATION: STATE-LEVEL REGULATION'S EFFECTIVENESS IN ADDRESSING GLOBAL CLIMATE CHANGE AND PROMOTING SOLAR ENERGY DEPLOYMENT

I am grateful that ERG provided me with a reason to come to California, and the knowledge and tools to stay! As a California Public Utilities Commissioner I use daily the analytical and community-building skills taught by ERG. As we face unprecedented climate change it is more important than ever to engage in interdisciplinary work and collaboration. Although the challenge of a global transformation in energy production can be daunting, what I learned from my research is that locally targeted incentives and policies can make a difference in the adoption and cost of clean energy resources. As I lead the CPUC's energy efficiency, energy storage, and electric transportation initiatives I will strive to develop California polices that provide local benefits and global learning.

Numerous people have supported my journey. Thank you to my dissertation and qualifying committee members Professors Severin Borenstein, Daniel Kammen, Catherine Wolfram, the late Professor Alex Farrell, and Dr. Margaret Taylor. Thank you to the Energy and Resources Group, the Energy Institute at Haas, and the Lawrence Berkeley National Laboratory. Thank you Dr. Carolina Balazs, Professor Koichiro Ito, Professor Howard Chong, Dr. Rob Letzler, Dr. Andrew Mills, Dr. Ryan Wisner, Galen Barbose, and Dr. Naim Dargouth. Thank you to the California Public Utilities Commission and California Energy Commission for their support. Finally, a big thank you to my family and friends, including Carl and Phylis Peterman, Matt Lesenyie, Louis Lesenyie, Audrey and Bill Irwin, Chad and Damali Peterman, Phoenix Armenta, and Patrick Wilson.



## JOACHIM (JO) SEEL

DISSERTATION: SOCIO-ECONOMIC AND ENGINEERING ASSESSMENTS OF RENEWABLE ENERGY COST REDUCTION POTENTIAL

A big thank you to everybody at ERG for providing me with a great community, to Dick Norgaard for picking me and my (then future) wife for the ERG master class of 2012 (long live ERG love), and to my dissertation advisers Severin Borenstein, Duncan Callaway and Meredith Fowlie. Utmost gratitude goes to my LBNL colleagues (and former ERGies), especially Ryan Wisner, Mark Bolinger, Andrew Mills and Naim Darghouth. Last but not least a heartfelt thank you to my wife Alison Seel who has been an incredible rock of support for me over the last year.

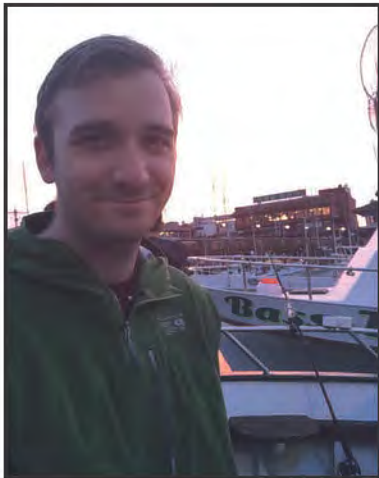
## IMRAN SHEIKH

DISSERTATION: DECARBONIZING RESIDENTIAL SPACE AND WATER HEATING IN CALIFORNIA

When debating between different graduate programs, my boss told me "Go to ERG. No question." I've come to appreciate that advice, as ERG has provided both access to deep expertise and flexibility to explore a wide range of topics. I have learned that the core value of a PhD. is not the courses or the methods that you learn, but the skill of forming a research question and answering it. ERG is exceptional in developing that skill in its students. I came to graduate school with a desire to understand why companies don't invest more in energy efficiency, but (as seems to be typical for many in ERG) I ended somewhere far different: strategizing about how houses in California could use less natural gas for space and water heating. While my stay in graduate school may have been longer than I initially intended, I am incredibly happy with where it has ended--with a dissertation topic that I am passionate about and my dream job waiting for me in the fall. I am thankful for the entire ERG community for offering friendship and guidance, and I am especially grateful Duncan Callaway for his patience and support as my research topics changed on a weekly basis. Lastly, I'd like to thank my parents for instilling in me the importance of education, for their support in all of my endeavors, and for their consistent nagging: "Is your dissertation done yet?"



# ERG MASTER'S DEGREES



## DAN AAS

PROJECT: GREATER THAN THE SUM OF THEIR PARTS? POLITICAL IMPACTS OF STATE CLIMATE POLICIES IN THE FACE OF PARTISAN POLARIZATION

**E**very day of my two years at ERG has been a challenge. The coursework is difficult, my colleagues are brilliant, and the community is wholly unwilling to accept a comfortable status quo. I do not use the word 'challenge' in a negative sense. ERG's features push students to develop new skill-sets, expand their ability to accommodate multiple disciplinary approaches and to incorporate new perspectives. In other words, the ERG experience requires growth.

Growth is hard, and growth is tiring. I couldn't have grown as much as I did during my two years at ERG without support from my classmates, friends, family and my partner Ugaso. This support structure has been a boon to me as I've moved through self-doubt and the occasional failure—two of the more difficult stages of growth. Equally important have been the very happy times I've enjoyed with all of you. Whether it was playing board games, joining me on one of my long walks home, or just chatting in the ERG kitchen, the opportunity to get know all my fellow ERGies has been a true pleasure.

## DENNIS VAHID BEST

PROJECT: EVALUATING THE HUMAN IMPACTS OF WILDFIRE RISK: LAND-USE DECISION-MAKING WITH GEOSPATIAL APPLICATIONS IN MEDITERRANEAN ZONES

**To** ERGies travelling near and far, keep up the Haiku and make a splash in those old ponds. Thanks to all for the exploration and enjoyment along the way.

"None is travelling  
Here along this way but I,  
This Autumn evening. "

- Basho

"An old pond  
A frog jumps in -  
Splash!"

- Basho

A big Thanks and Love to all my family and friends.



## ANNA BROCKWAY

PROJECT: DISTRIBUTED ENERGY RESOURCES: STATE PLANNING PROCESSES AND IMPACTS ON UTILITIES

**E**RG has challenged, stimulated, and inspired me. I am continually awed and humbled by this diverse group of brilliant researchers, practitioners, and storytellers who care deeply about making the world a better place. I am so fortunate to be surrounded by them. Thank you all for asking the hard questions, always keeping an open mind, and bringing a sense of empathy and justice to some of the most critical questions of our time. I am profoundly grateful for the conversations, the support, and the friendship I've gained from my fantastic cohort and the rest of the incredible ERG community. Thank you to all of the staff and faculty—and, on a personal note, to Duncan Callaway in particular—for their guidance, patience, and unyielding faith in all of us. I can't wait to continue learning from and growing with other ERGies as I continue on to the PhD.

# ERG MASTER'S DEGREES

## REBECCA COATES-MALDOON

PROJECT: ASSESSING INSTREAM FLOW STANDARDS UNDER CLIMATE CHANGE: IMPLICATIONS FOR STATE-LEVEL POLICY IN THE U.S.

**B**eing part of ERG has been a wonderful experience. Over the past two years, I have had the opportunity to deeply explore issues around water resources and policy, and to expand my knowledge base in areas I never expected. Thanks to the ERG students, faculty, and staff for being such a vibrant and supportive community – both in important intellectual debates and in everyday interactions – and for your ongoing commitment to making a difference. Here's to continuing to use ERGie big-picture, back-of-the-envelope thinking and interdisciplinary approaches where they are most needed in the world.



## JOHN PAUL DEES

PROJECT: MAKING GREEN TEA: UNDERSTANDING CONSERVATIVE ADVOCACY FOR SOLAR ENERGY

**C**ompleting the Master's degree at ERG has been a transformative experience for this transplant from rural Georgia. ERG gave me the space to explore, learn, and challenge myself. I had the very best cohort, and I'm still astounded and grateful that I've had the opportunity to call so many amazing, talented, and brilliant people my friends. I'm looking forward to continuing on to the PhD and having more time to learn from this amazing bunch. To those that are venturing out to put all that ERGie talent to work, I'll miss you dearly!

## STEPHEN JARVIS

PROJECT: MAPPING GLOBAL ENERGY DEMAND: CREATING A NEW DATASET OF GRIDDED WORLD

**M**oving from the UK to Berkeley back in 2015, I hadn't visited Cal and I certainly hadn't met any of the wonderful students that are graduating with me this year. Hell I hadn't even been to California before! As I look back now I must admit that I'm amazed at how little I knew about ERG and what it means to study here. After two years I can say without a doubt that I have no regrets making the move and feel truly blessed to be a part of such special, talented community. I would like to thank all the faculty and staff at ERG that have been so instrumental in supporting me here. I'm especially proud of having been able to take three classes with John and feel confident I will be able to appropriately approximate the shape of livestock for years to come. Thanks David for your enthusiasm and invaluable advice. Thanks Duncan and Max for putting up with being my readers. Thanks Kay for making sure that the "everything works out" mantra always holds true. Thanks Sydney for listening to me harp on about the latest "awesome" chart I made. Finally to my fellow students, it's been a pleasure going on this journey with you. For those that are heading back to the real world, stay in touch, and for those sticking around for another three years, I look forward to seeing how you spin the total 180 your research ideas have taken since the heady days of ER201. I know I'm already struggling.



# ERG MASTER'S DEGREES



## SEIGI KARASAKI

PROJECT: PREDICTING "HIDDEN" VULNERABILITIES: WATER QUALITY VIOLATIONS IN CALIFORNIA

One of the reasons why I wanted to come to ERG was because of the farewell blurbs I stumbled across, written by cohorts in the past. Through their words, I could viscerally feel a sense of camaraderie and community that clearly transcended two years of schooling. I knew this was special; and I knew I wanted to be a part of it.

I cannot hope to emulate the eloquence of the messages I read two years ago, but what I can say is that I found what I was looking for. The past two years have been filled with friendships and love that have far exceeded my expectations. I consider myself to be a very, very lucky human, surrounded by the most inspiring, driven, and yet somehow laid-back, humans I have been fortunate enough to meet.

## JESSIE KNAPSTEIN

PROJECT: RENEWABLE ENERGY TECHNOLOGY LEARNING CURVES AND POLICY

ERG is nothing without the community. You all have inspired me to be a better person in every way possible: intellectually (NSF has no idea what ERG is doing to its budget), physically (so many rock climbers...), socially (ain't no party like an ERGie party, because at an ERGie party, everyone is welcome and silliness abounds), and socially also in that ERG has continuously reinvigorated me to bridge divides and be a force for good. The inspiration ERG imparts, while transformative, is not deformative – every person is welcome to become a better version of themselves at ERG. My new yardstick in life is whether my actions will make the ERG community proud.

Thank you Dan for your confidence and for giving me a reason to save envelopes. Thank you David for your willingness to help and for your, often hilarious, frankness. Thank you John for teaching me new ways of looking at problems. Thank you Duncan for acquainting me with Sir Kirchhoff and for being a living example of the anti-aging effects of bike commuting. Thank you Isha for your infectious tenacity to solve monumental problems while laughing. Thank you Margaret for your support and for being the most humble genius I know. Thank you Megan for being the glue that holds ERG together. Thank you Kay for everything, literally everything, all the things, every single one. I can't fit all of the amazing ERG students but I love you all and hope to have great adventures with you for decades to come.



## JOSE DANIEL LARA

PROJECT: DISTRIBUTED BIOMASS GASIFICATION TO MANAGE TREE MORTALITY IN CALIFORNIA

Seneca wrote in his letters to Lucilius "Non quia difficilia sunt non audemus, sed quia non audemus, difficilia sunt" which translates as "It is not because things are difficult that we do not dare, but because we do not dare that things are difficult." I came to ERG looking for an opportunity to improve myself in the personal space and as an engineer. Daring to explore new areas and joining a multidisciplinary department can only be described as difficult; however, in retrospect it looks harder to have not followed the need to expand my intellectual horizon.

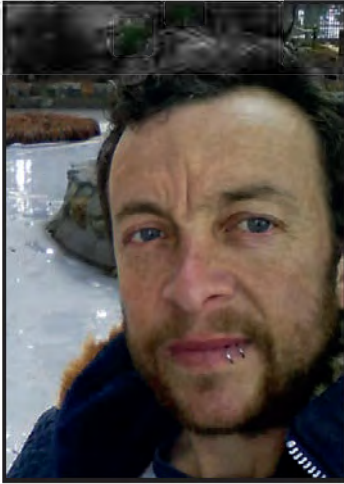
Life changes don't come without uncertainties - there is only some intuition about the direction we should take. Looking into my choice to come to ERG I see no regrets and still believe that real strength of character comes from acknowledging that a life not worth exploring and enhancing is a life not worth living. ERG has become a constant reminder that losing the capacity for surprise by disappearing into predictable patterns makes life unworthy.



# ERG MASTER'S DEGREES

## ELI BEN-RUTH LAZARUS

PROJECT: MEASURING THE REAL ECONOMY: GENUINE PROGRESS INDICATOR AND GROSS STATE WELFARE FOR CALIFORNIA, 2010-2014



**W**hat an extraordinary place! ERG has been an incredibly supportive environment for my unconventional research focus, my developing and somewhat idiosyncratic methods, and the special challenges of being a grad student single parent. That's understating the specific individuals who really looked out for me, went to bat time and time again to help me get what I needed, and facilitated me in finding my own way through – many people, but especially David Anthoff, Kay Burns, and Clair Brown (from the economics department). It's inspiring - if often intimidating - and an absolute pleasure to be surrounded by so much creative intelligence in the service of making a positive difference in innovative ways. I still don't know how to succinctly describe ERG or the program, but it seems like that's a good sign. I'm not going anywhere, and I'm really looking forward to this next phase – directly and exclusively pursuing the impossible goals of measuring total welfare, developing new economics, and investigating the very notion of value. Long live the Energy and Resources Group!

## BRITTANY SHAW

PROJECT: FINANCING KENYA'S VISION 2030 ENERGY PLAN: STRATEGIES TO INCREASE PRIVATE SECTOR INVESTMENT IN KENYAN GEOTHERMAL ENERGY

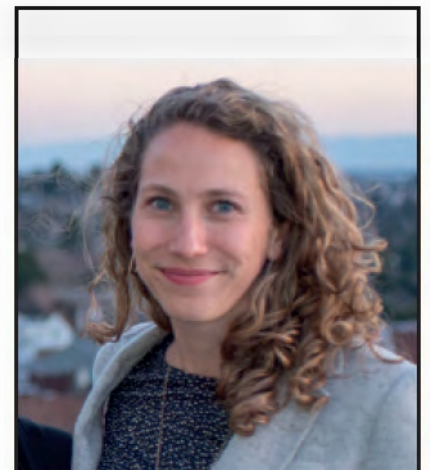
**I**t's a small miracle that, in the end, I pursued the very master's project I described two years ago in my application to ERG. Back then, I wondered whether I would still feel drawn to the Kenyan energy space. Could I learn everything I wanted in two years? And, like everyone, I wondered often if I'd be able to live up to the high bar of intelligent, interdisciplinary and conscientious work achieved by the ERGies I deeply admire.

Well, zero chance of learning ALL I wanted at Cal, but... what a way to whet my appetite! Researching for Dan in Kenya allowed me to dig into questions I had never examined before, and to get comfortable with stumbling blocks. No doubt, ERGies are an impressive and bar-raising bunch. Their real expertise, however, may lie in uplifting one another. I hold such gratitude to my cohort and our upperclassmen for picking me up on the "down" days and hiking, camping, eating and dancing with me on the "up" days!

To Nikky Avila, JP Carvallo and my advisor, Dan Kammen: I could not have done this without your support, and I hope you know how much that has meant to me.

Somewhere in my favorite childhood book, I read that "family is a life jacket in the stormy sea of life." To my family, wow, how do I even begin to thank you for sticking around through all my meltdowns? And can I keep my lifetime warranty on that?

To ERG, thank you for becoming family exactly when I needed you.



# ERG MASTER'S DEGREES



## JULIA SZINAI

PROJECT: CHARGING AHEAD: ASSESSING IMPACTS AND USER ACCEPTANCE OF MANAGED CHARGING OF ELECTRIC VEHICLES IN CALIFORNIA

I started working in the energy sector after college, and my experiences showed me just how much I still had to learn. I came to ERG to fill in those gaps, and while I quickly realized that feeling would never go away, ERG has enabled me to choose my own learning adventure. I plunged into new disciplines and tackled challenging topics—all of which have stretched me beyond my intellectual comfort zone and enriched the way I view the environment. Alongside this rewarding academic experience, I am so grateful for the camaraderie of ERG faculty, students and staff (Kay, what would we do without you?!). Thank you to my original and adopted cohorts (newbies 2014 and 2015), who are my best

teachers and mentors—on topics as varied as power systems, survey writing, and map-making—and who motivate me every day with their passion and talent. I'm also thankful for the supportive community of ERGie elders (especially Nikky and Kripa), and the powerhouse (pun intended) of ERG women for their friendship, solidarity and wisdom. Most importantly, I would like to thank Eyal for his encouragement, humor, patience through this process, which together deserve an honorary ERG degree. Thank you to my parents who have unconditionally supported me, and who inspire me everyday to make the world the better place. To the brilliant graduates, I know you are off to do great things with your interdisciplinary ERG toolkit and am less worried about the state of the world because you are working on the frontlines. For those of us staying for some more fun, here's to continuing to learn, grow, and adventure!

## VALERI NICOL VASQUEZ

PROJECT: THE HUMAN COST OF CLIMATE CHANGE: QUANTIFYING THE ECONOMIC IMPACT OF LIVES LOST

I am incredibly grateful to have been a part of a group as creative, kind, and intellectually inspiring as ERG. Many thanks and much love to the students, faculty, and staff that make this community what it is - I look forward to being in your midst for at least a few more years. Special appreciation to David Anthoff and his lab group for the academic guidance, moral support, and fun that they bring to my Berkeley experience. Thanks also, as always, to my parents.





# ERG MASTER'S DEGREES

## NIKLAS LOLLO

PROJECT: PAYING FACTORY WORKERS MORE

**L**ife in ERG seems to be defined by tensions. At times, the tensions are resolvable by analysis, but for the most part, the ever-present, irresolvable tensions are the guide to our best work. Above my desk, I pinned a list of Jack Kerouac's life lessons. Inspired by #24 – "No fear or shame in the dignity of yr experience, language and knowledge" and #28 – "Composing, wild, undisciplined, pure, coming in from under, crazier the better", I wrote a poem about purity and compromise.

u want to redesign the system,  
starting from the ground and heading up,  
first principles first,  
thinking,  
what is is not...  
what i like,  
and yet, u find out, to ur utter dismay,  
they're not taking applications at System Redesign Corp.

.u pause.

well then, of course:  
in temples of text  
there is pure intellect on p/reserve.  
and u r encouraged:  
~ there's a spot for u!! ~  
to rest easy,  
to be, \*possibly\*,  
exhumed and exalted  
(at a date still to be determined):  
whatamind!  
whatamaverick!

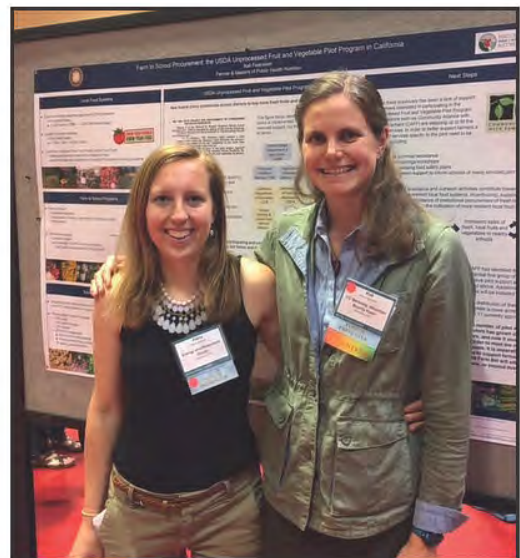
.u pause.

/,  
u might toss ur hat in with the revolutions,  
throwing flames at what is.  
u reflect:  
theyareright  
in essence, and,  
theyarewrong  
in practice,  
and there is much right with imperfect action!,  
but:  
is it u or is it a vessel u've hitched onto?  
&,  
...this is progress, this dismantling, right?

.u pause.

what if u take up residence  
in between  
purity and performance?  
u wonder:  
~ what does it mean to move the large a little? ~  
the guidance u receive:  
"one never knows one never knows"  
so, u speak the truth & make a beautiful mess in what is,  
without illusion  
with hope  
without holding back,  
pining for purity and finding a path  
in increments.

Thanks to all in the ERG community, my advisor David Anthoff, my (eternal) research leader Dara O'Rourke, those I've yet to meet, my family and friends and, once more, all those special people in the ERG community.



# AWARDS & FELLOWSHIPS

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Alex Farrell Memorial Fellowship

Pierce Gordon  
AREVA

Anne-Perrine Avrin

Arthur Rosenfeld Fellowship

Nkiruka Avila

Charles K. Birdsall Fellowship

Ian Bolliger

Chowdhury Graduate Fellowship

Yoshida Crider  
CONACYT

Juan Pablo Carvallo

Felipe Castro

Diego Ponce de Leon

Data Science in the 21st Century (NSF NRT)

Ian Bolliger, Frank Errickson, Eli Lazarus,

Niklas Lollo, Valeri Vasquez

Department of Energy Computational Science Fellowship

Richard Barnes

DIL Explore Grant

Veronica Jacome

DIL Innovate Grant

Diego Ponce de Leon

DIL Top-Up Scale Grant

Diego Ponce de Leon

Gates Millennium Scholar

Hilary Yu

Global Food Initiative 30-under-30 Award

Laura Moreno

Graduate Division Parent Grant

Eli Lazarus

Graduate Division Summer Grant

Sharada Prasad CS, Jessica Goddard, Christopher Hyun,

Seigi Karasaki, Morgan Levy

Graduate Opportunity Program Fellowship

Bodie Cabiyo

Hellman Graduate Award

Yoshida Crider

Morgan Levy

Innovations in the Nexus of Food, Energy and Water Systems

Funded Fellows

Pierce Gordon, Seigi Karasaki,

Laney Siegner

Innovations in the Nexus of Food, Energy and Water Systems

Program Fellows

Isa Ferrall, Niklas Lollo,

Julia Szinai

Institute of Current World Affairs Fellowship

Jessica Reilly

International Association for Landscape Ecology Student

Presentation Competition

Erica Newman

Link Foundation Energy Fellowship

Diego Ponce de Leon

Link Honorable Mention

Veronica Jacome

Stephen Jarvis

Maser Family Fellowship

Bodie Cabiyo

National Defense Science and Engineering Graduate  
Fellowship

Ian Bolliger

National Renewable Energy Laboratory Summer Program

Jose Daniel Lara

National Science Foundation Graduate Research Fellowship

Nkiruka Avila, Anna Brockway, Bodie Cabiyo, Yoshida Crider,

John Dees, Rachel Golden, Ezekial Hausfather,

Patricia Hidalgo-Gonzalez, Veronica Jacome, Noah Kittner,

Eli Lazarus, Jonathan Lee, Laura Moreno,

Cecilia Springer, Emily Woods

National Science Foundation Graduate Research Fellowship

Honorable Mention

Alex Dolginow, Isa Ferrall

Niklas Lollo, Valeri Vasquez

Outstanding Graduate Student Instructor Award

Eli Lazarus

Brittany Shaw

Philomathia Foundation Fellowship

Kripa Jagannathan, Lydia Vaughn,

Grace Wu

Quacquarelli Symonds Academic Excellence Fellowship

Stephen Jarvis

Rand Corporation Summer Fellowship

Valeri Vasquez

Rocca Dissertation Research Fellowship

Veronica Jacome

Siebel Scholar

Ranjit Deshmukh

Swift Family Fellowship

Esther Shears

Systems Approach to Green Energy (NSF NRT)

Cecilia Springer

UC Berkeley Fellowship

Gordon Bauer

Anna Brockway

John Dees

UC Cooperative Extension

Laney Siegner

UC Dissertation Year Fellowship

Lydia Vaughn

UC Global Food Initiative Fellowship

Kripa Jagannathan

Zaffaroni Family Fellowship

Juan Pablo Carvallo

# AWARDS & FELLOWSHIPS

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## GROUP PROJECTS:

Tiny House in My Backyard Project (THIMBY), Sacramento Municipal Utility District Tiny House Competition (Second Place Overall; First Place in Home Life, Water Conservation, Craftsmanship, and Sustainability Categories)

Ian Bolliger, Imran Sheikh, Laney Siegner

Valeri Vasquez, Emily Woods

Big Ideas at Berkeley

Ian Bolliger, Imran Sheikh, Michaelangelo Tabone

Electricity Program Investment Charge (EPIC) California Energy Commission

Anne-Perrine Avrin, Jose Daniel Lara, Jessie Knapstein

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## Make a Gift to ERG!

Please consider making a donation to ERG's research, teaching, policy influence, and scholar-activism for a sustainable environment and just society. Donations to our fellowship funds make a huge difference for our students and help bring their research to a world in much need of it. To give, contact our office, visit our website, or you can do it from your seat by typing this address into your phone's browser now:

[goo.gl/Ypw0wf](https://goo.gl/Ypw0wf)

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# ERG ALUMNI NEWS 2017



Since its founding in 2014, the ERG Alumni Network (ERGAN) has been working to consolidate the growing alumni community and help ERGies across the globe accomplish even more. Having successfully completed the first leadership transition in 2016, ERGAN continues expanding its offerings, aiming to go further in connecting ERGies near and far with regional events, online webinars, a quarterly newsletter, alumni spotlights, and an alumni-student mentoring program. At [ergies.org](http://ergies.org) you can find the 2016 Annual Report with more detail on activities and plans for the future.



The 2016-17 Board is led by President Sam Arons (MS'07), with Stacy Jackson (MS '08, PhD '12) serving as Treasurer, Maria Murmis as Secretary (MS'93) and Daniel Sanchez (MS'13, PhD'15) as Special Projects Officer. Niklas Lollo (MA/PhD student) is Student Rep and Alumni-Student Relations Chair, Tanya Dimitrova (MS '14) Communications Chair, Megan Amaral (staff) ERG Chair designee, Merrill Jones Barradale (PhD '10) Events Chair, Jason Anderson (MS'98) Fundraising Chair and Denis Sarigiannis (MS '90) Intellectual Networking Chair. Keep an eye out for ERGAN events and announcements by subscribing through [ergies.org](http://ergies.org). 2017/18 will feature the second ERGAN leadership transition. We look forward to the nominees for the exiting challenge of continuing to make ERGAN an even better network! Finally, a reminder that ERGAN activities are made possible by the voluntary \$10/year dues payment, as well as donations, both payable through [ergies.org](http://ergies.org). We look forward to another great year!

ALUMNI PROFILES CAN BE FOUND AT [ERG.BERKELEY.EDU](http://ERG.BERKELEY.EDU)

CONNECT WITH ERG STUDENTS, ALUMNI, FACULTY, AND AFFILIATES @ [ERGIES.ORG](http://ERGIES.ORG)

# ERG FACULTY NEWS 2017

UNIVERSITY OF CALIFORNIA, BERKELEY

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SANTA BARBARA • SANTA CRUZ

As this will be my last ERG graduation as Chair, I have been invited to reflect on highlights from the last four years and there are many. It begins with our “rave” (Dean Gilles) external academic review, resulting in our Strategic Plan to help guide and pursue its recommendations, enabling us to search for and recruit two outstanding faculty, David Anthoff and Lara Kueppers.

For help in pursuing our vision we turned to our outstanding and strategically positioned alumni, who responded vigorously by establishing the ERG Alumni Network (ERGAN) and organized the BIG Event – a reunion of nearly 300 alumni with John Holdren giving a keynote history of ERG and its significance.

Our progress has been constrained by campus financial challenges, but ERG has responded to increase our resources. We have launched summer session courses, and more than doubled our annual fund, both in income and participation. We are also exploring graduate concurrent enrollment, executive education and consulting through the concept of the ERG Exchange (ERG – X). These efforts are ongoing and will need development and care to enhance ERG’s mission and vision.

I must also cite my participation in the Tiny House In My Backyard (THIMBY) and development of the CEC funded Oakland EcoBlock project as Co-PI, as well as two milestones: Duncan Callaway’s promotion and tenure and John Harte’s transition to Professor of the Graduate School, as particularly rewarding.

In the end, the biggest highlights have been working with our two fabulous staff, Megan Amaral and Kay Burns, and working with our exceptional faculty and students in the most creative collegial atmosphere and participatory process with real progress in our efforts at Equity and Inclusion. I leave ERG in good hands, but will continue to help ERG achieve its extraordinary potential as an Affiliate.

In closing, I want to congratulate this year’s graduates and thank everyone for a fantastic four years.



Professor Harrison Fraker  
Chair, Energy and Resources Group



## DAN KAMMEN PROFESSOR

Dan took his first sabbatical in 17 years, and spent time in both East and West Africa, and with the RAEL team, he launched projects on mini-grids, community energy planning in Morocco and Kenya. In Malaysian Borneo Kammen and RAEL worked with a team of environmental justice advocates to defeat a billion dollar mega dam slated for the lowland rainforest. Kammen and colleagues published papers in *Science*, *Proceedings of the National Academy of Sciences* (2), and *Scientific American*. Surprisingly, Kammen continues his role as Science Envoy for the U. S. State Department.

# ERG FACULTY NEWS 2017

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## JOHN HARTE

PROFESSOR

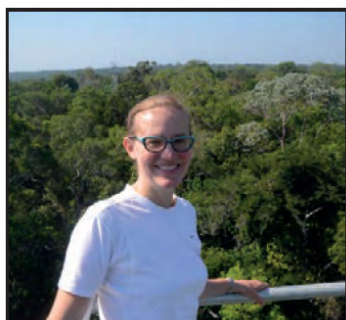


John Harte's research addresses ecosystems: how they function, how they are influenced by humanity, and how we are dependent upon them. He and his students conduct field studies in high mountain habitats and on island archipelagos, and advance theoretical ecology aimed at a unified understanding of both undisturbed and human-influenced ecosystems. During the past year, John presented his research in over a dozen invited talks, workshops and conferences. He will again be conducting field research this coming summer, at the Rocky Mountain Biological Research Laboratory in Colorado, where his subalpine meadow warming experiment will be entering its 28th year. After 44 years with ERG, John will become a Professor of the Graduate School starting July 1, 2017. In this "halfway house toward retirement," position he will continue full time his research and advising activities at ERG. Looking back, he states "There is no other place than at ERG where I could more productively or enjoyably have spent my career ... so why stop now?"

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## LARA KUEPPERS

ASSISTANT PROFESSOR



Lara Kueppers joined the ERG faculty in January and was pleased to teach the legendary ER102 in tandem with John Harte during the spring semester. She has also enjoyed getting to know ERG students, faculty and staff in the classrooms and hallways of ERG, and is looking forward to welcoming students to her nearly ready lab in historical Hilgard Hall. Since joining ERG, she and her collaborators have published papers on the effects of climate change on Western U.S. and tropical forest ecosystems, and on the effects of agriculture on the atmosphere. She is continuing her role as deputy director of a large DOE-funded project led by Berkeley Lab that aims to dramatically improve how global models represent tropical forests and their effects on the climate. Lara's husband (an ERG alum) and two boys (ages 8 and 11) visited her new office before marching for science in Berkeley on April 22.

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## DAVID ANTHOFF

ASSISTANT PROFESSOR



During the last year, David Anthoff once again taught a course on the Economics of Climate Change and the ERG Master Seminar. He also taught a new course on Computational Methods in Economics for PhD students for the first time this year. His research focuses on climate policy, and how the tools of economics can be used to design climate policy design. He builds integrated assessment models of climate change, and asks how distributional equity considerations can be incorporated into cost-benefit analysis of climate policies. His lab continues to grow and is now comprised of a healthy number of ERG Master's and PhD students and postdocs.

## CATHY KOSHLAND

VICE-CHANCELLOR, UNDERGRADUATE EDUCATION

Cathy Koshland is the Vice-Chancellor, Undergraduate Education, a post she began in 2014. This division has the campus lead responsibility for supporting innovation and change to improve the undergraduate experience. Major efforts include convening the Council of College Deans and working with many other units to help implement the vision for undergraduate education. Other dimensions of her work include guiding new ventures for UC Extension, edX, Summer Sessions, Study Abroad and OLLI; working on how best to leverage and integrate technology into teaching; supporting advising initiatives and the new student systems implementation project. This year she was the PI for two NSF/NIH workshops in collaboration with the Green Science Policy Institute on the responsible disposal of materials mixed with flame retardants. Cathy is delighted to have her five grandchildren in the Bay Area, and to be able to enjoy Open Field Farm in Petaluma - an organic biodynamic on-farm pickup CSA - that her daughter Sarah (Cal '99) runs with her husband. Maggie (Cal '02) lives with her family in San Mateo and works for IDEO. Jake, a Bear since birth will be making it official, starting at Haas in the fall to earn his MBA. He and his wife are expecting a baby in September.

# ERG FACULTY NEWS 2017

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## ISHA RAY ASSOCIATE PROFESSOR

Isha Ray continued to serve as Co-Director of the Berkeley Water Center and started new rural water and sanitation research efforts with China's Center for Disease Control. She is spending her sabbatical semester exploring action-research projects on sanitation and gender with UNICEF.



## DUNCAN CALLAWAY ASSOCIATE PROFESSOR

In the last year Duncan was promoted to Associate Professor (with tenure). He continued leading a team of researchers from Department of Energy labs to make the electricity grid more resilient because of (not in spite of) wind and solar generators. He also ramped up new efforts to understand pathways to bring electricity to the world's 1+ billion people without access. He gave talks at a variety of places including Honolulu, Santiago, Leuven (Belgium) and MIT and organized a Sloan Foundation sponsored conference on the engineering and economics of distribution systems.

## MARGARET TORN

ADJUNCT ASSOCIATE PROFESSOR



Margaret Torn studies the global carbon cycle, especially how terrestrial (land) ecosystems respond to climate change and alter the amount of greenhouse gases in the atmosphere. She will spend much of the summer above the Arctic Circle in Alaska, where she set up the first-ever controlled experiment to warm soil and permafrost, and is measuring greenhouse gas (CO<sub>2</sub>, CH<sub>4</sub>) emissions from thawing permafrost. Her study of soil warming in a California forest, showing that soil CO<sub>2</sub> fluxes to the atmosphere could increase by as much as 35% by end of this Century, greatly amplifying anthropogenic climate change, was published in March as the cover article in *Science*. She co-taught the ERG masters seminar for first-year ERGies, and participated in the ERG PhD seminar, highlights of her week. When not at ERG, Margaret leads the Biosphere-Atmosphere Interactions program at Berkeley Lab, with more than 50 people measuring and modeling ecosystems and climate change. Margaret is helping the state of California integrate terrestrial ecosystems in their plans for climate change mitigation under legislation AB32 and she is a founding member of the U.S. Deep Decarbonization Pathways Project.

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## IN MEMORIAM

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Arthur Hinton Rosenfeld, a close friend to many in the ERG community, passed away on January 27, 2017 at 90 years old. Art had a transformative role on our local and the global understanding of the value and power of energy efficiency. His career spanned a professorship in physics at UC

Berkeley, particle physics research, founding the energy research group at Lawrence Berkeley National Laboratory, service on the California Energy Commission, and at the U. S. Department of Energy. In 2011 he was recognized with the National Medal of Science and Technology, awarded by President Obama. Art was one of physicist Enrico Fermi's last graduate students at the University of Chicago. ERG students and alumni have been recipients of the Art Rosenfeld Award and ITRI-Rosenfeld Fellowship Award in honor of his pioneering work.

ERG alumnus Paul Baer (PhD 2005) passed away on September 6, 2016. Paul was a strong force as an activist scholar and interdisciplinary researcher. He was a leading thinker on how to determine the fair and equitable obligation of each country under UN climate agree-



ments, and a compelling voice bringing this work into the UN climate negotiations. Paul produced many publications including *Dead Heat* (2002) a book that a decade of climate campaigners carried and cited regularly. He co-authored the book with long time collaborator Tom Athanasiou with whom he co-founded the think tank EcoEquity in 1999.

