



# ANNUAL REPORT

2012-2013



# LETTER

e-LAB PROJECTS HAVE DELIVERED INNOVATIVE SOLUTIONS THAT NO SINGLE INSTITUTION COULD HAVE CONCEIVED ALONE.

e-Lab—the Electricity Innovation Lab—is something new. Since its inception in June 2012, it has earned recognition and engagement from dozens of key organizations that are shaping the evolution of the U.S. electricity system. Together, we—e-Lab’s participants, supporters, and organizers—are helping to change the rules of the game for how distributed resources such as solar power and energy efficiency are developed and integrated into the electricity grid. These changes are critical steps towards a more resilient, affordable, secure, and sustainable electricity system.

e-Lab provides a platform for diverse organizations to learn and work together in ways that overcome institutional gridlock and allow practical innovation. Already, our projects have helped to catalyze actions by key organizations with far-reaching impacts. e-Lab innovation workshops with the City of Fort Collins (Colo.)

and the U.S. Navy have taken on some of the most challenging problems facing the industry: the future of the electric utility business model and the valuation and optimization of microgrids. These projects have delivered innovative solutions and next-stage ideas that no single institution could have conceived alone.

e-Lab projects are gaining momentum and seeding new opportunities for leveraged impact in other organizations and jurisdictions. Together we are addressing some of the most important needs in the industry. An overwhelming majority of participants indicate confidence that e-Lab can make progress on real-world challenges facing our electricity future.

Although e-Lab is still young, a wider industry audience’s desire for e-Lab research products and project insights is increasing rapidly. Key industry leaders, analysts, and advocates have

acknowledged the unique role that e-Lab is playing by creating a safe zone for dialogue, collaboration, and innovation on issues that are potentially divisive and prone to conflict in regulatory and political environments. In just twelve months we’ve made an important start on this work, but there is much more yet to come as we further strengthen and extend e-Lab’s capabilities and engagement.

As an e-Lab participant or supporter, you are a critical part of this journey, and we are honored to have you on the team.

**James Newcomb**

PROGRAM DIRECTOR, ROCKY MOUNTAIN INSTITUTE

**Lena Hansen**

PRINCIPAL, ROCKY MOUNTAIN INSTITUTE



# Why



“TRANSFORMING THE ELECTRICITY SYSTEM REQUIRES COORDINATED ACTION BETWEEN UTILITIES, SOLAR AND OTHER TECHNOLOGY PROVIDERS, END USERS, AND POLICY MAKERS. BY INITIATING COLLABORATIVE PROJECTS WITH INDUSTRY PARTNERS THAT ADDRESS KEY UNMET CHALLENGES AROUND THE ECONOMIC AND TECHNICAL INTEGRATION OF DISTRIBUTED ENERGY RESOURCES, e-LAB IS CREATING A BLUEPRINT FOR DEVELOPING AND IMPLEMENTING THESE SOLUTIONS AT SCALE.”

—**Curtis Seymour**

*Director of Government Affairs, SunEdison*

# WHY

## Why is e-Lab needed?

Strong forces are driving transformative change in the U.S. electricity sector, creating the promise of a more resilient, affordable, secure, and sustainable future. Realizing this promise, however, will require engagement and innovation across traditional institutional boundaries to develop new solutions—pricing, business, and regulatory models, customer engagement and participation strategies, and more. Successful solutions must address not only the technical, but also the social and creative complexity facing the electricity system.

e-Lab focuses on the distribution edge: the portfolio of energy resources located close to the customer, including rooftop solar photovoltaics (PV), electric vehicles, energy efficiency and demand response. This is where the fundamental forces changing the energy sector have their

greatest impact, leading to both significant opportunity and significant conflict.

These changes now unfolding will require an unprecedented degree of coordination and collaboration among stakeholders whose interests intersect—and sometimes conflict—at the distribution edge. The issues are both technical and economic, and they pose deep challenges to existing paradigms of grid operation, regulation, and electricity pricing.

**ADVERSARIAL AND ANTAGONISTIC POSITIONING ON KEY ISSUES CAN DELAY NEEDED CHANGES BY DECADES.**

### OUR IMPERATIVE: VISION FOR THE ELECTRICITY SYSTEM

Excerpted from e-Lab's Shared Vision Statement, developed by e-Lab participants

- Strong forces are aligning to drive transformative change in the U.S. electricity sector. These forces include the growing need for reinvestment in electricity infrastructure, climate change and other environmental concerns, and the rapid development of new business solutions to leverage the changing cost of technologies that produce, deliver, and use electricity.
- The varied interests of e-Lab agree: There is significant opportunity to integrate diverse technologies and approaches at the distribution edge of the grid and thereby realize a more resilient, affordable, secure, and sustainable electricity system that serves the public interest and creates greater value for all stakeholders.
- There are also significant challenges, as efforts to bring change will be met by opposition. We believe the key characteristics of a future electric system are transparent costs, as well as policies and regulations for demand- and supply-side solutions that allow for innovation, competition, experimentation, and adaptation that continuously improve the performance of the electricity system.



# What



“THE MAGIC AND SECRET SAUCE OF E-LAB IS ITS METICULOUS DESIGN. E-LAB IS AS CLOSE TO A NEUTRAL AND OPEN-MINDED BODY AS I HAVE FOUND. I THINK IT’S A VERY SUCCESSFUL PROGRAM AND WE ARE HONORED TO BE A PART OF IT.”

—Elisabeth Brinton

*Chief Customer Officer, Sacramento Municipal Utility District*

# WHAT MAKES e-Lab DIFFERENT?

e-Lab is a multi-year, multi-stakeholder forum to support practical engagement and innovation across traditional institutional boundaries. Such an approach is crucial to overcome barriers to economic deployment of distributed resources in the U.S. electricity sector. e-Lab participants convene for rapid mutual learning and engage in on-the-ground projects that address the biggest challenges facing the sector: its new business, pricing, and regulatory models; grid security; and grid integration. In this context, e-Lab works to answer three key questions:

1. How can we understand and effectively communicate the costs and benefits of distributed resources as part of the electricity system and create greater grid flexibility?
2. How can we harmonize regulatory frameworks, pricing structures, and business models of utilities and distributed resource developers for greatest benefit to customers and society as a whole?
3. How can we accelerate the pace of economic distributed resource adoption?

e-Lab uses innovative “change lab” processes and tools—adapted from proven efforts to solve complex problems in other sectors such as food supply—that recognize that making lasting change requires addressing several types of complexity that are often overlooked.



**SYSTEMIC:**

e-Lab provides a “whole system” view of the electricity sector and provides opportunities to see and understand dynamics, trends, and opportunities often hidden to one industry segment or another.

**CREATIVE:**

e-Lab supports participation in practical innovation projects by giving participants space and tools to develop new solutions and avenues for testing and applying them.

**PARTICIPATIVE:**

e-Lab offers an opportunity to engage with diverse stakeholders in a non-adversarial dialogue about the barriers and opportunities facing the electricity sector.



# Who



“PHILANTHROPIC SUPPORT, TALENTED FACILITATORS, AND ENGAGED PARTICIPANTS COMBINE TO CREATE e-LAB, A UNIQUE FORUM FOR FRESH THINKING ABOUT OUR ENERGY SYSTEMS.”

—Roger Woodworth

*Vice President and Chief Strategy Officer, Avista Utilities*

# WHO

## WHO IS INVOLVED?

### e-LAB ADVISORY GROUP

A distinguished advisory group composed of experts and thought leaders from a wide range of perspectives provides ongoing advice on e-Lab's focus, structure, and evolution.

- Ake Almgren, President, Orkas, Inc.
- Doug Arent, Executive Director, Joint Institute for Strategic Energy Analysis, NREL
- Ron Binz, Former Chairman, Colorado Public Utilities Commission
- Ralph Cavanagh, Senior Attorney, NRDC
- Richard Cowart, Principal, Regulatory Assistance Project
- Tom Dinwoodie, Cofounder & Former CTO, SunPower Systems
- Stephan Dolezalek, Managing Partner, Vantage Point Capital
- Claude Genereaux, Director & Leader, Electric Power Practice, McKinsey & Co.
- Amory Lovins, Chief Scientist & Chairman Emeritus, RMI
- John Rowe, Former Chairman & CEO, Exelon
- Audrey Zibelman, Former CEO, Viridity Energy

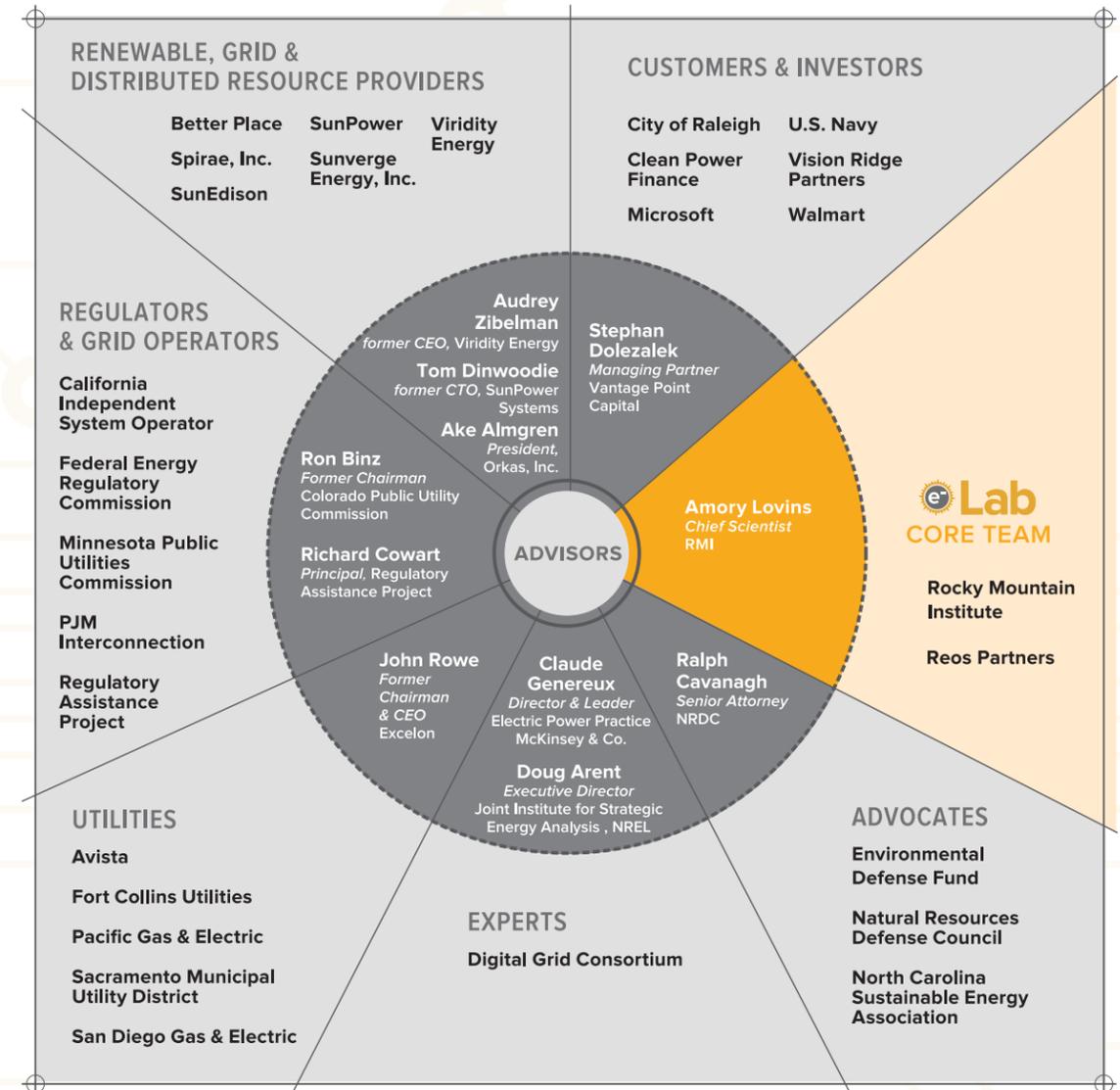
### e-LAB CORE TEAM

e-Lab is convened by Rocky Mountain Institute, an independent, nonprofit think-and-do tank whose mission is to drive the efficient and restorative use of resources. It is supported by Reos Partners, a social innovation consultancy that addresses complex, high-stakes challenges around the world.

- James Newcomb, Program Director
- Lena Hansen, Principal
- Virginia Lacy, Senior Consultant
- Jon Creyts, Program Director
- Ned Harvey, Chief Operating Officer
- Rebecca Cole, Communications Director
- Emily Loose, Business Development Assistant
- Jodi Hubble, Director of Foundation and Corporate Relations
- Joe McCarron, Partner, Reos Partners
- Adam Kahane, Partner, Reos Partners

### e-LAB PARTICIPANTS

e-Lab's participants are thought leaders and decision makers from across the electricity sector, creating a microcosm of leading utilities, regulators, large customers, distributed renewable and technology companies, and NGOs. Uniquely, we bring together incumbents and insurgents in a safe place where they can seek mutually advantageous solutions.



# Results

“WE HAVE JOINED WITH THOUGHT LEADERS, TECHNOLOGY EXPERTS, AND OTHER BUSINESSES TO EXCHANGE IDEAS AND FIND SOLUTIONS TO THE MOST PRESSING ISSUES. IT’S A UNIQUE OPPORTUNITY FOR US TO COLLABORATE ON OUR SHARED GOAL OF A CLEAN ENERGY FUTURE.”

**—Angie Beehler**

*Senior Director for Energy Regulation and Legislation, Walmart*

# RESULTS

## RESULTS AFTER ONE YEAR

In its first year, e-Lab made significant strides towards building the capacity of change agents in the electricity sector, fostering the development of new ideas and solutions, and engaging directly with leaders to test and implement new ideas that can ultimately scale broadly throughout the industry.

### CAPTURING VALUE AT THE DISTRIBUTION EDGE

Historically, electricity sector regulations, policies, and utility retail pricing have assumed centralized power generation and transmission. But with accelerating adoption of distributed energy resources, it is time for a new approach to our electricity system. To do that, we need a clear understanding of the benefits and costs that distributed energy resources can provide, otherwise those resources won't be able to realize their full potential.

That's why e-Lab conducted an assessment of key studies from around the U.S. to define the benefits and costs of distributed energy resources ([rmi.org/elab\\_emPower](http://rmi.org/elab_emPower)). The assessment creates a reference point for industry stakeholders to use in regulatory analysis, pricing, and policymaking. e-Lab followed up that assessment with the report *New Business Models for the Distribution Edge* ([rmi.org/New\\_Business\\_Models](http://rmi.org/New_Business_Models)), which explored and analyzed new regulatory approaches, pricing structures, and business models to harmonize incentives of electricity providers, customers, and distributed resource developers and providers.

### CONSTRUCTING REVOLUTIONARY SOLUTIONS WHERE THE RUBBER MEETS THE ROAD

In addition to understanding problems and creating solutions, e-Lab works to evolve, flesh out, and ultimately implement those solutions with partners. In our first year, we collaborated with Fort Collins Utilities and with the U.S. Navy to tackle some of the industry's toughest problems.

#### *Fort Collins Utilities:*

The City of Fort Collins, Colo.; its municipal utility, Fort Collins Utilities; and other stakeholders will create a net-zero energy district and dramatically reduce carbon emissions. e-Lab engaged community stakeholders and national experts to develop approaches to dramatically accelerating the deployment of energy efficiency and renewable generation. An innovation workshop identified action steps to achieve these accelerated goals, including specific ideas for tariff design, financing, and community engagement, currently being fleshed out.

#### *U.S. Navy:*

Microgrids offer the Navy a way to substantially bolster energy security on its bases to support combat readiness and the deployment of ships

and planes. As an early adopter of microgrids, the Navy's work in this area will validate the technology and pave the way for commercial scaling of the technology throughout the industry. Such scaling is important, thanks to microgrids' resiliency against cascading blackouts and their natural compatibility with renewable generation and distributed energy resources. To support and accelerate

Navy progress on this key technology, e-Lab convened leaders from the Navy and a diverse expert group. The team developed a design and evaluation approach to compare and develop microgrid designs and characterized the ability of microgrids to not only bolster security, but to participate in electricity markets to improve the technology's economics.



## DRIVING THE CONVERSATION

e-Lab's success depends on more than developing new ideas and testing and implementing them with participating organizations. Success also requires spreading e-Lab's insights to scale its impact. A combination of published reports, online content, industry and popular media traction, and direct industry and stakeholder engagement is driving the conversation about electricity system transformation, strengthening e-Lab's influence, and laying the ground work for scaling its impact.

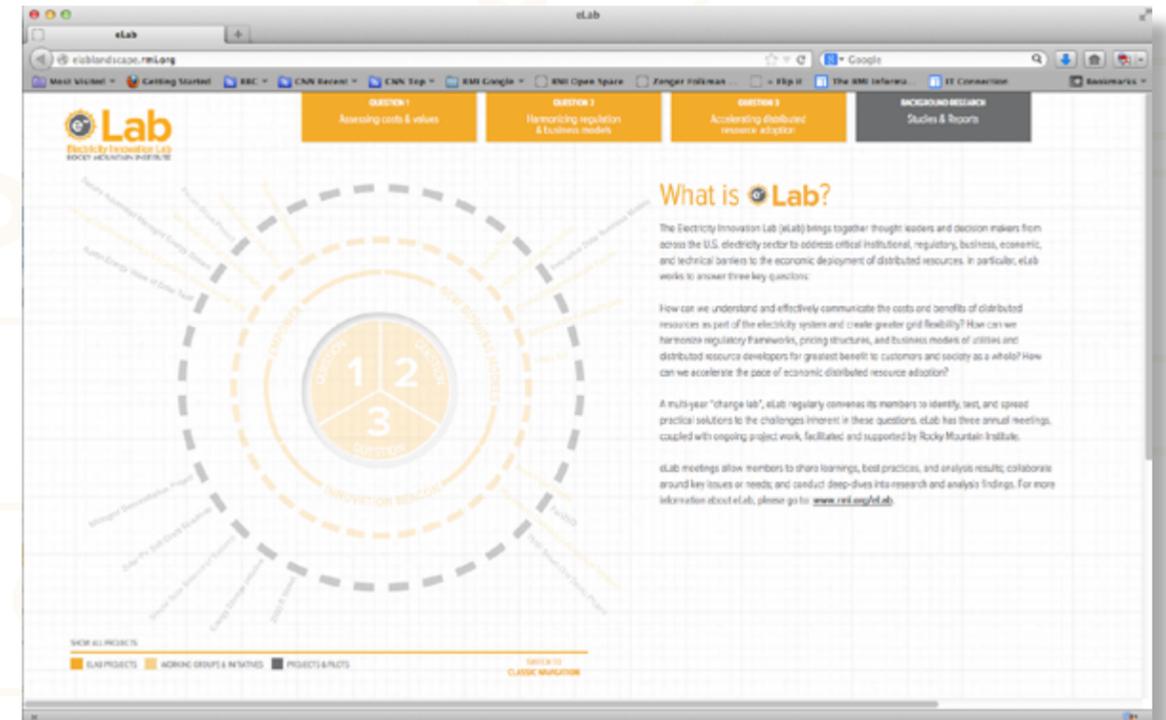
- 6 blog posts, 7 videos, and 3 Google Hangouts with nearly 20,000 unique views
- An interactive website, to explore the projects—both within and outside of e-Lab—that are tackling issues at the heart of e-Lab's focus, <http://elablandscape.rmi.org>

- Four reports:
  - **A Review of Solar PV Benefit and Cost Studies** ([rmi.org/elab\\_emPower](http://rmi.org/elab_emPower))
  - **New Business Models for the Distribution Edge** ([rmi.org/New\\_Business\\_Models](http://rmi.org/New_Business_Models))
  - Innovation Beacon projects ([rmi.org/elab\\_Innovation\\_Beacon](http://rmi.org/elab_Innovation_Beacon))
    - **Building the Electricity System of the Future: Fort Collins & Fort ZED**
    - **Capturing the Value of Microgrids: Naval Facilities Engineering Command (NAVFAC) Southwest**
- Invitations for presentations to diverse institutions including the National Association of Regulatory Utility Commissioners, San Diego Gas & Electric, VoteSolar, and the State of Minnesota
- Articles citing e-Lab's work and projects in *Scientific American*, *Grist*, *Intelligent Utility*, *Greentech Media*, *CleanTechnica*, and other industry and trade press channels

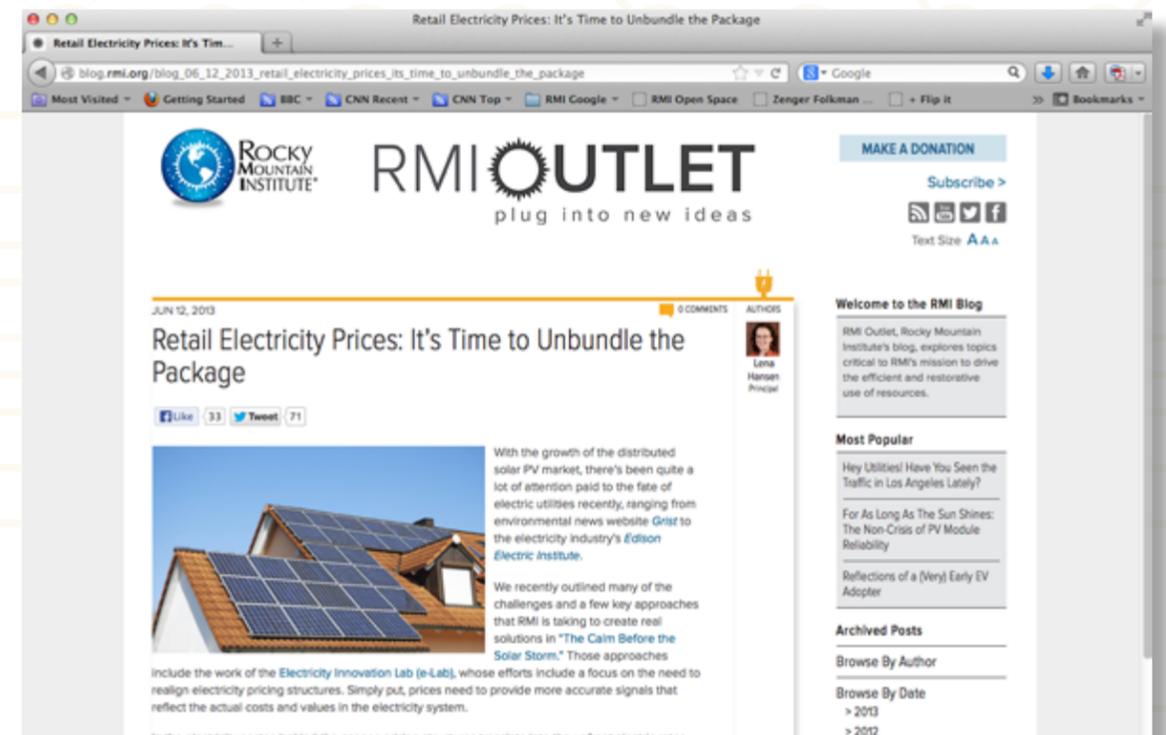
## e-LAB PARTICIPANT SURVEY RESULTS FROM 2012–13 MEETINGS

e-Lab's Core Team conducts participant surveys at each e-Lab meeting to ensure continuous learning and improvement. At the end of e-Lab's first year, 93 percent of e-Lab participants surveyed either "agree" or "strongly agree" that e-Lab's collaborative projects are addressing key unmet needs in the electricity industry. Fifty-two percent said that their participation in e-Lab has already yielded positive outcomes for their organization, and another 33 percent said "not yet, but there will be soon." An overwhelming majority of participants indicate confidence that e-Lab "can make progress on real world challenges facing our electricity future."

interactive website, <http://elablandscape.rmi.org>



RMI blog site, <http://blog.rmi.org/>



# Finances

A man in a dark suit, white shirt, and glasses is focused on writing in a notebook. He is wearing a lanyard with a badge that says "Lab". He is sitting at a table, and another person's head and glasses are visible in the foreground on the left. The background is a blurred conference setting with other people and chairs. The overall scene is professional and collaborative.

“AS A PARTICIPANT IN THE FORT ZED CHARRETTE, NEXT STEP LIVING WAS GRATEFUL FOR THE OPPORTUNITY TO SHARE OUR EXPERIENCE AS A GROWING LEADER IN RESIDENTIAL ENERGY EFFICIENCY AND SOLAR PV. THE CHARRETTE INSPIRED US TO TAKE THE CONCEPT BACK TO MASSACHUSETTS, WHERE WE CONDUCTED OUR OWN DESIGN CHARRETTE FOR COMMUNITY PARTNERS. OVER 20 COMMUNITIES AND AGENCIES PARTICIPATED, LEADING TO MULTIPLE NEW COMMUNITY-BASED OUTREACH PROGRAMS THAT CONTINUE TO DRIVE ENERGY EFFICIENCY AND RENEWABLE ADOPTION.”

**—Travis Estes**

*Director of Community Programs, Next Step Living, Inc.*

# FINANCES

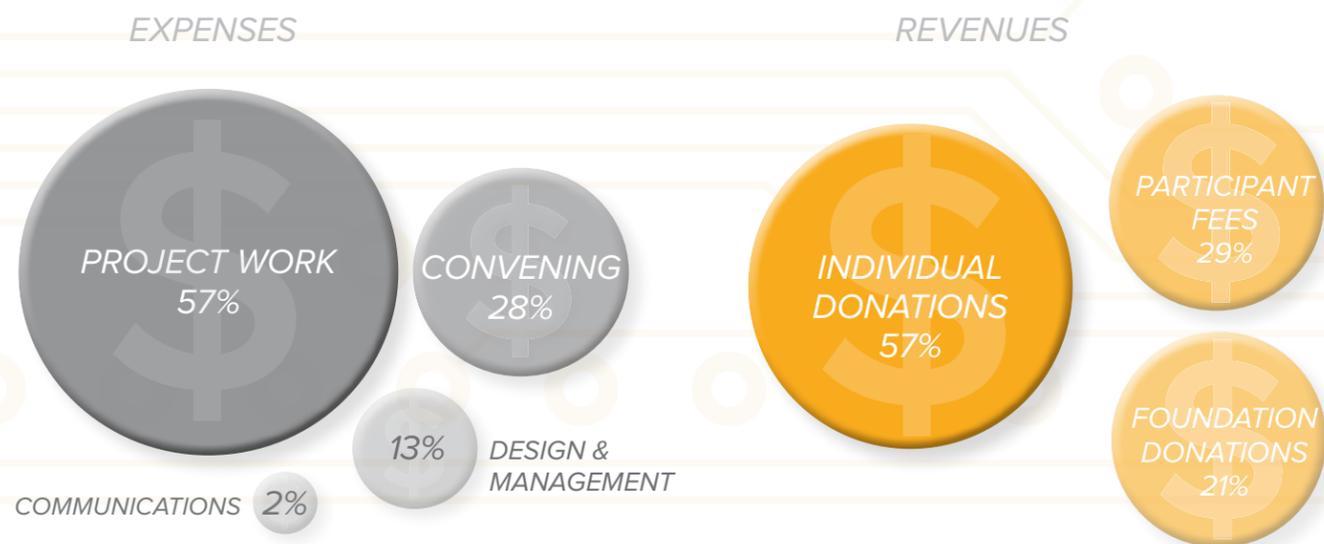
## e-LAB SOURCES AND USES OF FUNDS, FY 2013

Funding for e-Lab comes from a combination of generous financial support from donors and annual fees paid by participating organizations. All participating organizations contribute to e-Lab through some combination of financial and/or in-kind contributions of time and resources.

We invite your questions, ideas, and support to help us make this transformation a reality. Learn more about e-Lab at [electricityinnovationlab.org](http://electricityinnovationlab.org). To learn more about making a financial contribution to e-Lab, please contact Jodi Hubble at [jhubble@rmi.org](mailto:jhubble@rmi.org) or 303-567-8587.

### e-LAB SOURCES AND USES OF FUNDS, FY 2013

### THANK YOU TO THE FOLLOWING GENEROUS SUPPORTERS WHO HELPED MAKE THE WORK OF e-LAB POSSIBLE IN FISCAL YEAR 2013:



- |                                       |                                  |
|---------------------------------------|----------------------------------|
| TARA ADERS                            | LANGDON MARSH                    |
| THOMAS ASPREY                         | MAC AND LESLIE MCQUOWN           |
| ARGOSY FOUNDATION                     | MARDELLE MORENO-WILBUR           |
| AYRSHIRE FOUNDATION                   | JAMES P. MULDOON                 |
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| KEVIN AND MAURYA BRENNEMAN            | CHERYL NEUENKIRK                 |
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| CAROLYN FOUNDATION                    | MARTIN PANELO                    |
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| DEREK COWBURN                         | RMI'S NATIONAL SOLUTIONS COUNCIL |
| LUMINA GREENWAY                       | ROCKEFELLER FAMILY & ASSOCIATES  |
| KATHY GUEST                           | SCHMIDT FAMILY FOUNDATION        |
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| ERIKA LEAF AND CHRISTOPHER MEEKER     | SETH AND TERRY WILSON            |
| KARIN LINK                            | ANONYMOUS (4)                    |
| GREGORY A. FOWLER AND JULIE B. LOVINS |                                  |
| ERIK RICARDO MAGUINA                  |                                  |

TOTAL FUNDING FY 2013: \$1.4 MILLION



Rocky Mountain Institute (RMI) is an independent, entrepreneurial, 501(c)(3) nonprofit organization. Rocky Mountain Institute's mission is to drive the efficient and restorative use of resources.

Our vision is a world thriving, verdant, and secure, for all, for ever.



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