

The background features a series of overlapping circles in light blue and olive green. A dotted line in blue starts at the top left and curves towards the center, while another dotted line in olive green starts at the bottom left and curves towards the center. The text is positioned in the upper left area.

# Think and Do

Rocky Mountain Institute®  
Annual Report 2008–2009

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-  26 trees preserved for the future
-  74 lbs waterborne waste not created
-  10,961 gallons wastewater flow saved
-  1,213 lbs solid waste not generated
-  2,388 lbs net greenhouse gases prevented
-  18,278,400 BTUs energy not consumed
-  2,957 lbs ghg emissions not generated
-  2 barrels fuel oil unused
-  not driving 2,926 miles
-  planting 201 trees

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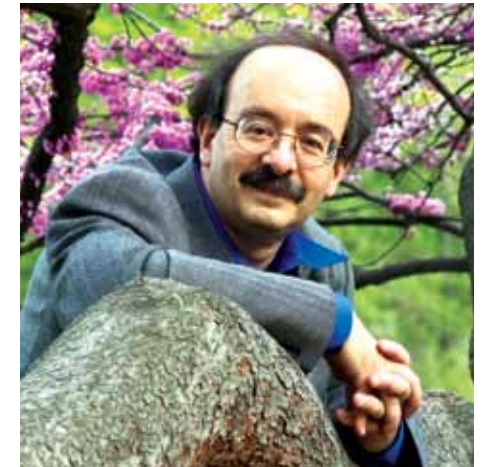




## Think and Do

Since 1982, Rocky Mountain Institute has fostered the efficient and restorative use of resources to make the world secure, just, prosperous, and life-sustaining. In April 2009, we reframed that statement (only a few words of which had changed) to say the same thing even better in changing times. We separated the vision statement—a world thriving, verdant, and secure, for all, for ever—and changed the mission statement's verb to one less diffident than “foster,” so now we *drive* the efficient and restorative use of resources.

RMI does solutions, not problems; transformation, not incrementalism; practice, not theory. We create effective and original action by transforming design, busting barriers, and spreading innovations. Our patient labor of discovering and multiplying rewarding solutions is now coming together in our most ambitious effort yet: reshaping how the world gets and uses energy.



RMI's strategic focus, sharpened in 2009 (p. 6), weaves together much of our energy work of the past 27 years plus further innovations, and applies our discovery of how integrative design can achieve expanding, not diminishing, returns to investments in advanced energy efficiency (p. 12). We call this strategic focus “Reinventing Fire”: mapping and driving *the profitable transition from oil and coal to efficiency and renewables*. This transformational shift can bring an oil-free world, a stabilized climate, nuclear nonproliferation, less poverty, more stability, and durable prosperity.

The oil half of Reinventing Fire is well underway. Five years ago, RMI's Pentagon-cosponsored *Winning the Oil Endgame* detailed how to eliminate U.S. oil use by the 2040s, led by business for profit, at an average cost of \$15 per barrel (2000 \$). That visionary but severely practical roadmap has quietly refocused the oil conversation from small import reductions to complete displacement, as markets validated our past two decades' prediction that oil would become uncompetitive even at low prices before it became unavailable even at high prices. Our implementation effort via “institutional acupuncture” is also bearing fruit (p. 25). In April 2009, the *Wall Street Journal* reported ([online.wsj.com/article/SB123957686061311925.html](http://online.wsj.com/article/SB123957686061311925.html)) that U.S. gasoline demand had peaked and is headed permanently down. Not bad so far for a three-year, \$4-million effort to displace the world's largest industry, whose product causes 43 percent of U.S. fossil carbon emissions.

Next we aim to help speed the transformation of the electricity sector, which emits another 41 percent of that carbon, 92 percent of it from coal. For decades, RMI has been the global thought leader on how efficiency can save most of the electricity used in buildings (70 percent of U.S. usage) and industry (30 percent), and why distributed generation is often about tenfold more valuable than had been thought ([www.smallisprofitable.org](http://www.smallisprofitable.org)). “Negawatts” and “micropower,” once dismissed as trivial, now dominate the competitive landscape, delivering most of the world’s new electrical services. In 2008, for the first time in about a century, the world invested more in renewable than in fossil-fueled power.

But how will all the moving parts fit together to transform the electricity industry? Some people still claim solar and windpower can’t do much because they don’t always work. But neither does any traditional power plant: sources of electricity differ only in the size, duration, frequency, cause, and predictability of their failures. Extending utilities’ proven techniques for managing intermittent supply and fluctuating demand, RMI is now synthesizing a practical vision of the shape, stability, economics, and transitional path of an efficient, diverse, dispersed, renewable, resilient, and climate-safe electricity system that should work better and cost less than today’s grid. This seminal thinking is already starting to reshape both utility strategy and public policy. And we’re starting to weave the integrative-design, oil, electricity, gas, direct-coal, and related stories into a coherent synthesis of how to win the entire fossil-fuel endgame, again led by business for profit.

This Annual Report summarizes RMI’s work from July 2008 through June 2009, and the many improvements we’ve been making to help meet the rapidly rising demands of a world eager for our leadership in creating abundance by design. It’s an exciting time, with success emergent, risk everywhere, and a rising sense (as I said on this page last year) of applied hope.

Frances Moore Lappé said, “Hope is a stance, not an assessment.” Our work and your help are making that assessment ever more compelling.

**Amory B. Lovins**

*Cofounder, Chairman, and Chief Scientist*

Old Snowmass, Colorado

13 September 2009





## Reinventing Fire

We open this letter with a strong note of gratitude to our supporters. As the importance of our mission becomes more apparent, and the world becomes more receptive to our messages and collaboration, you have held firm in supporting our work during tough times. Thanks to you, this report details another strong year of influence and impact for Rocky Mountain Institute.

Last year's report signaled our intention to embark on a rigorous strategic process to engage our staff, our Trustees, and our wide network of colleagues and practitioners in generating a compelling vision of a desirable future and a concrete plan to get there. That's exactly what we did.

In an extraordinary collaboration, the staff and Trustees of RMI took a hard look at the Institute and at the rapidly changing state of the world. We performed exhaustive internal and external surveys; we dove deep into current thought and literature; we conferred with many leaders of commerce, civil society, government, and science; we took stock of our own strengths and weaknesses. Building on these insights, we engaged in a series of rigorous discussions to raise our sights and deepen our impact.

The result of these efforts is a rich and exciting game plan, code-named "Reinventing Fire," that rests upon the attributes and accomplishments of the Institute while challenging us to build new strengths. In many ways, this strategy is still a work in progress, but its guiding concepts were formally adopted at a Board of Trustees retreat in April 2009. They comprise seven basic elements:

- **The "old and improved" RMI mission continues to guide us.**

Amory's letter on p. 4 explains that while we have refreshed the way we describe our vision for the world, we've also recommitted ourselves to driving the "efficient and restorative use of resources."

- **We aim to speed the global shift from coal and oil to efficiency and renewables.**

Harnessing the awesome power of fossil fuels created wealth and opportunity with a global scope once unimaginable, but also created great and rising challenges in security, economy, and environmental degradation. These interlinked challenges comprise the pivotal issue of our generation—perhaps of our species. Shifting from fossil fuels to superior alternatives is our collective imperative and Rocky Mountain Institute's strategic focus.

- **We accelerate the profitable transformation of vital energy-consuming industries.**

The vast majority of fossil-fuel use occurs in four sectors that will form our primary focus: buildings, transportation, industrial processes, and electricity generation. Our strong track records and relationships in all four will serve us well. So will our unique insights into how to save and displace fossil fuels more cheaply than buying them. We will help these industries understand and capture the diverse and exceptional value of energy efficiency and renewables, achieving shared goals even if for differing reasons.



- **We build sector roadmaps and drive initiatives to achieve these goals.**

Building on our successful start in implementing *Winning the Oil Endgame*, we are dedicating much effort to creating “roadmaps” that lay out attractive transformation paths for each targeted sector. Concrete and actionable, these roadmaps are continuously tempered and improved by verification and collaboration with outside experts and clients. We are also concentrating our efforts in ambitious, wide-ranging strategic initiatives to catalyze lasting, critical change. You will hear much more about these initiatives, such as “Commercial Building Retrofits” and “Next-Generation Utility,” as they mature.

- **We engage leaders and stakeholders capable of transforming industries.**

Ultimately, it is the leaders of commerce, civil society, and government who will choose lasting change. We seek to shape their choices by showing them how to succeed in a new energy economy. A pivotal shift in this strategy will be our increased focus on amplification, so that we not only prove the value of important innovations, but also work to help take them quickly to scale.

- **We align our people and processes to maximize the impact of our work.**

Our ambitious aims call for a new way of designing and operating the Institute. Every internal process, from our financial chart of accounts to our training of new staff, is being examined and evolved. We are merging our specialty-centered teams into an integrated practice with a “dynamic resourcing” model that brings a more integrated, cross-sector, whole-system approach better matched to the challenge. Finally, these new goals call for new capabilities, so we have already begun to supplement our team with deeper industry and strategic skills.

- **Our “hybrid” funding strategy reliably supports institutional and programmatic activities.**

RMI has traditionally leveraged donor funding to drive thought leadership, and client funding to prove our concepts in real-world engagements. Our new strategy takes this unique hybrid approach a step further. We are increasing the proportion of donor funding to allow for more robust research and thought leadership, and are therefore integrating our practitioners more closely with our Development team. We have designed a rigorous internal selection process to assign funding and resources to the highest-impact strategies. We are engaging outside colleagues in deep partnerships that amplify the impact of our work. We will continue our tradition of carefully targeted client-funded engagements, but we also expect to engage more closely with powerful for-profit practitioners so key innovations can be scaled more quickly.

“Reinventing Fire” has unleashed new energy and enthusiasm inside and outside RMI. A strong commitment to these elements is moving us to ramp down some legacy activities and kick off exciting new ones. In the coming months, you will see more of the impact of these innovations.

Which returns us to the note of gratitude that opened this letter. It is the wider community of RMI supporters and collaborators that makes our work possible. We are honored to serve you and our world. Together we can reinvent fire, in order to create, with you, a world thriving, verdant, and secure, for all, for ever.

**Michael Potts**

*Chief Executive Officer and President*







RMI's Board of Trustees

## From the Lead Trustee

For more than 27 years, RMI has been a leader in both the conceptual and the practical spheres of energy efficiency and the careful choice and use of energy resources. Today, more than ever, the multi-pronged challenges of energy and resources are taking center stage, making it all the more crucial that our research and ideas stay on the leading edge.

As you'll read elsewhere in this report, RMI is refocusing its strategic direction, and better organizing the Institute to guarantee that we maintain this focus.

RMI's Board of Trustees has a key role to play in this strategic shift. It's our task to help ensure that RMI's staff and collaborators embrace that strategic direction, and that the goals are clear and achievable, and will have a lasting impact. We also need to ensure our staff has the tools, resources, and creative space they need to drive the change we all envision. As a Board, we are responsible for making sure that RMI is working with an effective business model and a transparent structure that everyone associated with the organization understands and endorses.

It's important that we play a thoughtful, focused, and supportive role for our staff, our sponsors, and the public. Nonprofit organizations—doing the good in the world that needs doing—require solid leadership to deliver management, decision-making, and accountability. In recent years we have worked hard to establish financial controls and to bring our corporate structure into conformance with best practices for nonprofit organizations. It is particularly important to ensure a strong financial and governance base for the imaginative research-based work of the famously visionary people of RMI.

But most significant, as Board members—further strengthened this year by four additions (Peter Boyer, Thomas Dinwoodie, Arjun Gupta, and Don Woods)—we appreciate the opportunities for creative and productive service that our Board positions offer us. We have a lot on our plates. We are here because we are energized by the new mission focus, and dedicated to RMI's people, supporters, and game-changing work. There is no more exciting and important work we could be doing right now.

**Suzanne H. Woolsey**  
*Lead Trustee*



## Greg Franta's Sun Keeps Shining

RMI Senior Vice President and Principal Architect Greg Franta's RMI office still houses his books and magazines. His team still gathers there to talk, brainstorm, solve problems, and meet with clients. And Greg is there with us, on the walls in his photographs and awards, to inspire and to remind RMI's people of the many important ideas and the attitude he carried, which made so profound a difference in the success of our work.

RMI suffered a huge blow in February 2009 when Greg was killed in a car accident. Greg led the Built Environment Team at RMI since 2005, and under his leadership the team grew from its original four members to nearly 30 talented individuals presently engaged in over 100 cutting-edge projects. Greg was revered nationally and internationally as a pioneer in green architecture and sustainable development. He provided design and consulting services on more than 800 energy-efficient and environmentally sound projects, including community and large-scale developments, offices, laboratories, educational buildings, and homes (one of which was the White House). Greg was also instrumental in developing the U.S. Green Building Council's LEED rating system for buildings, and he was one of the founders of the American Institute of Architects' Committee on the Environment. We could go on. Indeed, we have, at [www.rmi.org/sitepages/pid593.php](http://www.rmi.org/sitepages/pid593.php).

RMI staff, clients, friends, and family have left many notes and memories in tribute to Greg on our website at [www.rmi.org/gregsfund](http://www.rmi.org/gregsfund). We all miss his companionship and leadership. RMI has a tradition of naming conference rooms after the planetary bodies—Mercury, Jupiter, Neptune, Saturn, and Asteroid conference rooms all revolve around the office. As a tribute to Greg's luminous personality and to his long history of using the sun's light and heat advantageously in his designs to reduce energy use, RMI chose to call Greg's former office and library Sun.

RMI created the Greg Franta Leadership Fund to honor and continue Greg's leadership in the sustainable architecture field at RMI. To support the fund, please visit our website.





## 2008–2009: The Year in Review

The past year has been one of great change in the world, notably in the sectors where RMI has long played a prominent role (buildings, transportation, industry, energy, security). This annual report centered on “think and do” describes a variety of representative projects from 2008–2009 and their evolutionary progress in three stages: ideation, barrier busting, and implementation.

For RMI, ideation involves brainstorming, primary research, and synthesis of existing knowledge to transform concepts into marketable solutions.

Our barrier-busting efforts require convening key stakeholders, leveraging partnerships, and creating and refining processes to break down barriers that prevent widespread adoption of an innovation.

Implementation is where our work meets the real world to create the “tipping point”—the moment when widespread adoption develops real traction and major players begin embracing a new innovation.

Our efforts span this evolutionary spectrum, but the key for RMI is applying the right pressure to keep the worthwhile efforts moving forward while vigorously encouraging and strengthening those that are ready to fly.



Ideation

## Closing the Efficiency Gap

“Assessing the Electric Productivity Gap and U.S. Efficiency Opportunity,” an influential study by RMI’s Energy & Resources Team (ERT) (<http://ert.rmi.org/files/documents/CGU.RMI.pdf>), compares how productively each of the 50 United States used electricity in 2005—how much gross domestic product each state produced per kilowatt-hour consumed, adjusted for economic mix and climate. Since whatever exists is possible, this comparison reveals how much more productively the laggard states could use electricity if they simply caught up with the leaders.

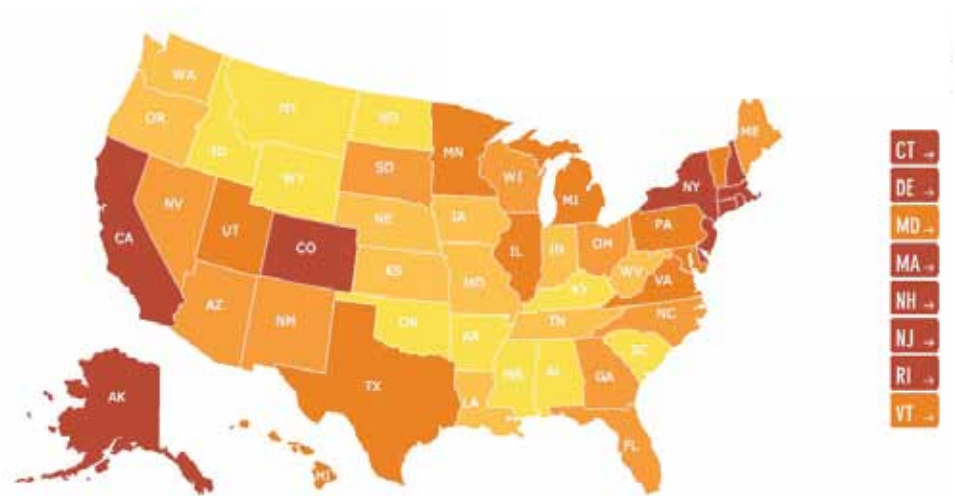
ERT found dramatic variations from state to state. If poorly performing states could achieve the average electric productivity of the top ten performers, the nation could save 1.2 million gigawatt-hours per year, displacing the equivalent of 61 percent of U.S. coal-fired generation or 31 percent of total electricity. This could also save customers more than \$100 billion each year.

More important than the size of the opportunity is that it can be seized. Each state is unique, and the top ten are diverse and sometimes unexpected. ERT researchers point out that many lessons can be learned from the collective national knowledge of best practices, utility regulatory experience, and technology adoption. According to ERT Consultant Natalie Mimms, “Taking lessons from efficient states will facilitate adoption and prevent states from sinking resources into ‘reinventing the wheel’ of state efficiency programs and implementation practices.”

To help states and regions understand how and why they fared as they did in this state-by-state ranking, ERT developed an online map (<http://ert.rmi.org/cgu/index.htm>). This interactive tool can be customized to show electric productivity statistics, the size of any gap in electric productivity between the state and the average of the ten top-performing states, and carbon reduction opportunities. It also offers up-to-date data, statistics, and a link to the full “Closing the Efficiency Gap” report that utilities can use to guide their efficiency solutions.

RMI will next pick a region and create a roadmap showing how to close its efficiency gap. The states’ adjusted electric productivity will help show which actions states should pursue to catch up with and surpass the leaders.

Of course, even the ten most electrically efficient states in 2005 still have a long way to go—as RMI’s consultancy continues to demonstrate through startlingly large and lucrative savings in both buildings and factories, which use respectively about 70 percent and 30 percent of U.S. electricity. But for those who want to walk and run before they fly, “CGU” is a great place to start.



Electric productivity is dollars of gross domestic product divided by kilowatt-hours consumed (\$GDP/kWh). This map ranks how effectively each state used electricity in 2005, relative to the average of the ten most productive states—all adjusted for economic mix and climate.





## 10xE: Better Design for a Better World

For decades, RMI has sought to influence right up front the design of new and retrofitted power and industrial plants, commercial and residential buildings, and vehicles and transportation systems so they achieve radical energy and resource efficiency, yet often cost *less* to build.

Yet year after year, we find that the people creating inefficient processes and systems are simply unaware they are doing so—and often when told, they don't know how to change. The reasons boil down to a few familiar parameters: assumed cost, time, tradition, and skills.

To bridge the gap between understanding the problem and actually solving it, RMI is now moving into high gear an ambitious project called Factor Ten Engineering, or 10 E (see [www.10xE.org](http://www.10xE.org)). In 2008–2009, the effort gained initial financial support and momentum, moving from concept phase to execution.

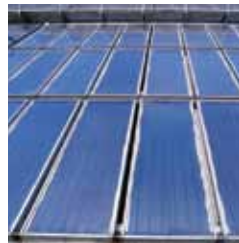
The project will create a series of tools to help engineers and architects design for many—often ten or more—times less energy and resources than current best practices to perform the same task or create the same product. The centerpiece of the project is a casebook to be assembled by leading practitioners and teachers in summer 2010, then beta-tested, improved, and widely disseminated. It will integrate vivid, “high-brain-Velcro” examples that our experience suggests will irreversibly rearrange the mental furniture of those who practice and teach design.

RMI and our partners (chiefly university engineering schools, engineering firms, and their customers) have been assembling and writing up several dozen case-studies that compare on facing pages a standard, *dis*-integrated design with a highly integrative design that optimizes whole systems for multiple benefits rather than isolated components for single benefits. These cases, spanning the range of engineering disciplines and applications, show how such integrative design can generally make very large energy and resource savings cost *less* up front than small or no savings—thus turning diminishing returns into expanding returns to investments in energy efficiency. We believe this way of combining technologies is even more important, and far less known, than the efficient technologies themselves. In short, 10xE could prove very important, so we're pleased that after many years, we're starting to turn it from ambition to actuality.



**10xe**  
FACTOR 10  
ENGINEERING





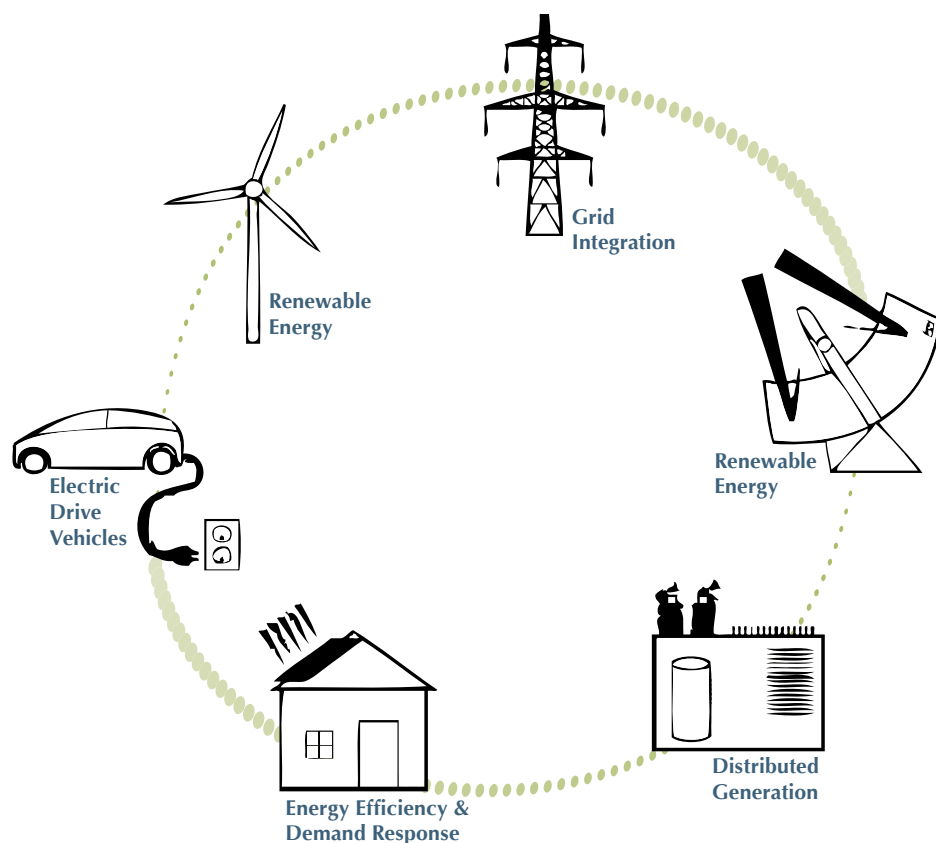
## The Sun Also Rises: RMI's Solar Value Chain

Solar energy has vast potential. Every 70 minutes or so, the sun supplies the earth with enough energy to run global civilization for a year. By better harnessing that power, we can move closer to a clean and renewable energy economy. Of course, the solar energy industry has ground to cover. It must expand drastically and quickly, and is already doing so. In 2008, distributed renewables added 40 billion watts of power worldwide, and windpower added the most capacity of any source in the U.S. and Europe. But further acceleration faces a range of obstacles that must be overcome if solar energy is to realize its promise of outcompeting and displacing fossil fuels.

RMI's Solar Value Chain Initiative is designed to root out solutions to these obstacles and ignite the rapid growth of the photovoltaic (PV) industry. Our research team has identified many opportunities to expand the sector—in supply-chain dynamics, design and manufacturing techniques, grid integration, and regulatory and policy barriers. The solar energy industry is simply riddled with bottlenecks and obstacles, and we intend to map where they are and how to clear them away.

Just the cost of a kilowatt of photovoltaics is an obstacle. It must fall severalfold if solar power is to beat not just new coal plants but also old ones, and thus to grow from a niche market to dominance. Fortunately, RMI has discovered many ways to drive down manufacturing and application costs. Take, for instance, module-making—an energy-intensive and often inefficient process. Silicon, the material often used to capture sunlight, is cut from large wafers to form precisely sized cells. But each wafer comes in a different size, and cutting them to a uniform shape leaves a heap of wasteful scraps. Furthermore, the tools used in this process vary in effectiveness. Streamlining these processes and improving the efficiency of the tools can eliminate much manufacturing cost and energy, making PVs far more competitive.

RMI is establishing strategic partnerships in every corner of the industry. By working with major PV-makers, we will develop a proof-of-concept that demonstrates effective ways to reduce costs through whole-system design and supply-chain coordination. And by partnering with utilities, we'll be able to identify efficient ways to install solar in and integrate it with the grid. By driving concrete action and implementation, we expect the Solar Value Chain Initiative to create the sorts of breakthroughs we've already brought to other high-tech sectors from data centers to chip fabs.



## Next-Generation Utility (NGU)

The past year saw further development of the Next-Generation Utility (NGU), RMI's conceptual model for a reliable, cost-effective, and low-to-no-carbon U.S. electricity system. Many analysts have proposed general 20- to 50-year visions of a de-carbonized electricity system, but NGU appears to provide the first analytic framework that identifies the specific changes utilities will need in order to overcome the barriers to achieving this shift, and show how it can fit into their strategic goals.

A low-carbon electrical system will operate differently than today's grid. Efficiency and renewables, demand response, distributed generation and storage, digital intelligence, and new forms of storage (notably in electrified vehicles linked via RMI's Smart Garage approach—see p. 16) will first supplement, then supplant traditional coal and nuclear plants. A smooth, risk-managed transition requires a clear understanding of how these elements will fit together. Seeking a credible model for such a grid and its transitional path, RMI developed the following hypotheses:

- *Energy efficiency*—by using better appliances, technologies, and design strategies, we can use significantly less electricity to do the things we do.
- *Renewable energy*—as efficient use flattens and then reverses demand growth, diverse renewables will provide clean power in rapidly increasing amounts.
- *Distributed generation*—recycling waste heat and providing power closer to where it is used are crucial to reliable and affordable supply.
- *Demand response*—actively but nonintrusively optimizing when energy is used can stretch generating and grid capacity, improving economy and reliability.
- *Storage and electric vehicles*—electrified vehicles (EVs) offer storage and load-shifting while reducing total emissions from the transportation sector.
- *Grid integration*—the antiquated electric grid needs an upgrade that includes advanced communications, security, and metering capabilities.

Taking into account these hypotheses, RMI's NGU analysts have developed a modeling tool that simulates the grid by using real data from utilities across America. The model graphically reveals hourly costs and emissions of the energy mix. Initial

results are promising and well received. RMI has found that, contrary to popular belief, greater use of efficiency, renewables, and storage can make electricity more affordable and more resilient. Our real-world data show that traditional fossil fuels can only be a transitional, not permanent, source of energy.

With the model fully developed, we are starting to apply it with industry partners. We are starting to help large utilities demonstrate that a low-carbon system is feasible, to ground our research even more deeply in field data, and to check our hypotheses against the experience of on-the-ground system operators. By engaging with the industry, RMI's work will validate credible ways for utilities to provide better service at lower cost, make more profit at less risk, and become leaders in the emerging transition to resources that use nothing, waste nothing, and do no harm.



## Barrier Busting

### Keeping On Trucking: RMI's Transformational Trucking Initiative

The Transformational Trucking Initiative, led by RMI's Mobility + Vehicle Efficiency (MOVE) team, tackles big problems with big vehicles—and has *giant* implications for a modern economy. Though needed to transport everyday goods, trucks are in serious trouble. More and more trucking companies are going bankrupt, diesel prices have been volatile, and carbon emissions are growing exponentially. Few improvements have been adopted industry-wide to curb fuel consumption. In 2008, freight trucking was the second greatest user of petroleum products (17 percent) in the United States, yet fleet efficiency has been nearly stagnant for 30 years.

MOVE is working to save the industry through efficiency. RMI believes that current technologies can more than double 18-wheelers' efficiency, halving their fuel use and carbon emissions per ton-mile. To start this industry-wide transformation, RMI organized and convened more than forty trucking industry experts in Denver, Colorado, 14–16 April 2009, for the Transformational Trucking Charrette. The three-day event was the first time that representatives from across a fragmented industry came together with the common goal of identifying what is standing in the way of doubled efficiency, and exploring cost-effective solutions (see the charrette report at <http://move.rmi.org/transformationaltrucking>).



Left: Brainstorming at RMI's April 2009 Transformational Trucking Charrette.

Below: RMI intends to more than double the 18-wheelers' efficiency (currently 6.5 mpg average).





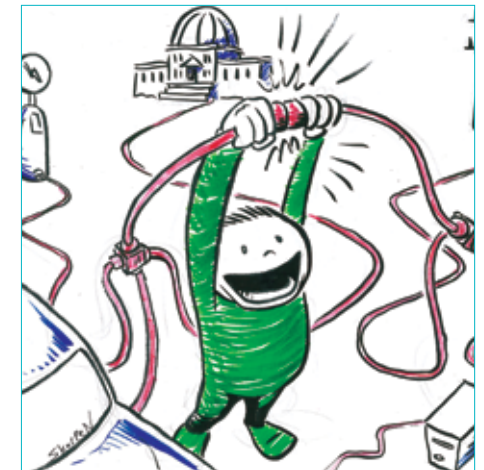
The charrette spawned several efforts that foster collaboration and insight. The first centered on the creation of a trucking technology standards organization, the U.S. Council for Freight Efficiency (USCFE), soft-launched in August 2009 (<http://www.freightefficiency.org>). This nonprofit organization aims to “drive the development and adoption of efficiency-enhancing, environmentally beneficial, and cost-effective technologies, services, and methodologies in the U.S. freight industry by establishing and communicating independent and performance-based standards.” Somewhat akin to the U.S. Green Building Council, USCFE will offer sound and independent technical data on technologies’ performance as well as marketing and user information.

Other projects suggested by the charrette include a “national freight strategy” (a likely USCFE opportunity) and the development of a doubled- or even tripled-efficiency demonstration truck. Meanwhile, MOVE Principal Hiroko Kawai is promoting the work, speaking most recently at Osaka University’s Sustainability Transition Conference on the U.S. trucking industry and its challenges.

### The Smart Garage Charrette

In 2008–09, the diverse fields of energy, transportation, and green building began to coalesce into an unlikely partnership led by the United States—and by RMI. “Smart Garage” is a metaphor for the seamless integration of vehicles, homes, and offices via the electric power grid. The grid, buildings, and vehicles would share power and information to create mutual value. Consumers would make better choices about the energy they use, would have access to more reliable, cheaper, and cleaner energy, and would need less of it. This profound shift is starting to occur because of recent advances both in the grid and in vehicles. Yet until RMI applied its integrative approach and convening power, progress was fragmented, halting, inconsistent, and unpredictable. The emerging industry even lacked a common language to describe its evolutionary paths and its basic concepts.

In 2008, RMI launched the Smart Garage (as Dr. Joel Swisher, PE, called it)—an ambitious effort to guide the hundreds of products, thousands of players, and billions of dollars that will come together in this next big energy solution. During 8–10 October 2008, RMI convened the Smart Garage Charrette in Portland, Oregon to catalyze Smart Garage implementation (see <http://move.rmi.org/innovation-workshop-category/smart-garage.html>). This diverse, inclusionary, neutral, open-source, game-changing event—along with an analytical model RMI



Above: RMI Staff at the Smart Garage Charrette.

Below: Sketches by Bryan Gough and Neal Skorpen, illustrating Smart Garage Charrette ideas.





developed—brought together, often for the first time, more than 70 experts from 43 organizations in 7 sectors. In three intensive days, they carded and wove the strands of emerging technologies, regulations, and business opportunities, and organized a coherent description of how they could converge in ways that could solve the salient problems without making more. Participants mapped the business models to ensure that everyone could make money (they could), framed a sensible basic story for the sector’s evolution, and explored the needed software and hardware interoperabilities. The event spawned several other efforts, including Project Get Ready (see below) and a subordinate effort to assess the business case for stakeholder investment in public electric-vehicle charging infrastructure.

All this builds upon RMI work done in 1991, when RMI Chief Scientist Amory Lovins invented the “vehicle-to-grid” concept (using parked electrified vehicles as plug-in power-plants on wheels), and later in the 1990s when he and a small group of transportation researchers developed a concept about vehicles efficient enough to electrify so they could link to the grid—when batteries, the grid, and vehicles hadn’t yet evolved enough to support the Smart Garage. How times change.



Above: Project Get Ready helps cities like Houston apply Smart Garage Charrette ideas by preparing them for vehicle electrification.

Left: projectgetready.com lets RMI immediately disseminate ideas and tools cities can use.

## Preparing Cities for Electric Vehicles: Project Get Ready

Around the globe, dozens of communities are working to accelerate the adoption of plug-in vehicles powered by batteries, with or without a supplementary fueled engine. Many see this as an economic development opportunity, a competitive advantage, or simply the right thing to do. Unfortunately, they’re hamstrung by a “chicken-and-egg” challenge—knowing how these vehicles, the necessary charging infrastructure, and consumer demand will evolve, and where and when to jump in.

These pioneering towns and cities also have no way to share best practices and cautionary tales. Similarly, automakers have no way to ascertain which communities are getting ready for plug-in vehicles, so they have a tough time evaluating cities’ progress and customer interest. Automakers have cited a dearth of information and validated market demand as critical barriers to higher plug-in vehicle production. So, in February 2009, RMI and several partner organizations launched Project Get Ready to fill this information gap. Project Get Ready is a multi-faceted collaboration with communities that are convening local players to develop and implement plug-in adoption plans. Project Get Ready relies on RMI’s recognized convening power, as well as detailed financial analyses of the business case for investment in public charging infrastructure and a cost-calculator for consumers to estimate the payback period when purchasing a plug-in electric vehicle over a traditional vehicle.







Above: Cliffs Cottage at Furman University (Greenville, SC) is a model of environmentally sustainable design, green building techniques, natural materials use, and energy-saving systems.

Right: Luther College (Decorah, IA) responded to student suggestions by creating the Luther Bike Share program to promote physical fitness and reduce pollution.



To date, six cities have joined Project Get Ready: Denver, Houston, Toronto, Portland, Indianapolis, and Raleigh. More recently, RMI and our partners launched Project Get Ready's website (<http://projectgetready.com>), with a menu of actions communities can take at low cost and risk to be ready for the plug-in transition.

Project Get Ready will ensure that the first million plug-ins are a success, and will accelerate the arrival of the next million. This novel effort also shows how RMI's forward-thinking ideas can bust barriers and shift paradigms—sometimes faster than even we had thought.

“We have great momentum with Project Get Ready,” noted Consultant Matt Mattila of RMI's MOVE Team. “It's exciting to see this effort taking off so quickly. It's incredible to see automakers, who in the past only wanted to beat their competitors, join together in these discussions, to listen to our city partners, and to help them prepare for plug-in vehicles.”

### School's In: RMI Accelerates Carbon Reductions on Campuses

Twelve colleges have deeper commitments and more aggressive climate protection programs after participating in RMI's Accelerating Campus Climate Initiative's research project in 2008–2009.

Our campus climate work reached a high point this summer when RMI held a workshop in Denver in June, arranged seed grants for participating schools for their climate programs in July, and began preparing an online book (slated for release in November 2009) that will guide institutions, academic and otherwise, that are implementing climate programs.

RMI visited the twelve campuses for two days each to understand individual campus programs and discuss and compare their opportunities. RMI followed up these visits with a 2–4 June workshop in Denver, where representatives from the colleges and universities shared innovative climate project ideas, solutions, and techniques to fund and market climate projects.

Thanks to an anonymous donor, RMI also awarded seed grants (\$32,000–44,000 per institution) to participating schools for high-priority projects that will overcome thorny barriers to climate neutrality.



Participating schools include Colorado State University, Furman University, Harford Community College, Lakeshore Technical College, Luther College, Richland College, Tufts University, Unity College, University of Minnesota Morris, the University of Missouri, the University of Vermont, and Yale University. RMI developed the Campus Climate Initiative in collaboration with the Association for the Advancement of Sustainability in Higher Education (AASHE). Other participants include the National Wildlife Federation, which has developed a Campus Ecology Program; Second Nature, a Massachusetts nonprofit that advances sustainability on college campuses through outreach, advocacy, and curriculum and capacity development; and VerdeCapital, LLC, which finances green projects in educational and healthcare institutions.

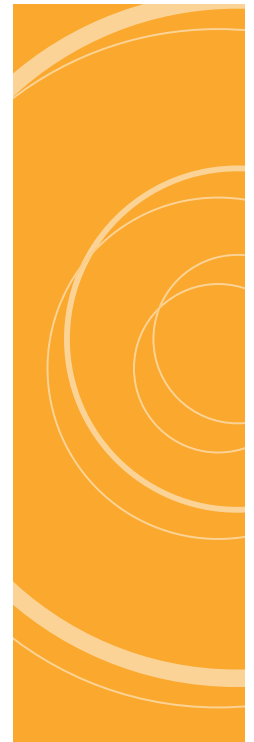
## Implementation

### Copycats Welcome!: Empire State Building Retrofit

Suddenly every flagship skyscraper seems to want to do a green retrofit. In fact, Chicago's Willis (formerly Sears) Tower recently announced it is going really green. Have they perhaps taken some inspiration and ideas from RMI and the industry team that designed a pioneering energy retrofit for the Empire State Building in 2008–2009?

We hope so. As you may have heard, RMI, serving as a technical advisor, helped design a program expected to save 38 percent of the Empire State Building's energy use (not counting its broadcast facilities), investing an additional \$13 million to save approximately \$4.4 million per year in energy costs (see <http://bet.rmi.org/rmi-news/greening-the-empire-state-building.html>). But this wasn't a one-off demonstration: a central tenet of this retrofit was that it be replicable, and actually be replicated as widely as possible.

The project upheld all the usual RMI principles of integrated design and whole-system thinking, but also capitalized on an outstanding opportunity. The building's owners took advantage of a planned \$500-million remodeling project, adding some



important new ideas. The most important and novel will be removing the building's 6,514 window's sashes and glass, cleaning the glass, and adding a low-emissivity (low-E) suspended film between the reused panes, then filling the assembly with insulating heavy gas (typically krypton) and reinstalling. This simple step will prompt cascading energy savings, cutting the windows' winter heat losses by upwards of two-thirds and their summer heat gains by half. The cooling units could then be much smaller, so instead of tearing up Fifth Avenue to replace and expand them, they could be renovated in place and reduced. This in turn will save considerable capital and operating costs—helping to pay for the rest of the retrofit, and importantly, courting office-space renters and improving the building's bottom line.

The word on what's possible in a skyscraper is spreading. When the project was announced, more than 500 news publications around the world featured stories on the Empire State Building "going green." Even after the initial media buzz, the building continues to be regularly mentioned in the news as a major influence on other high-profile commercial retrofits. (To read more about the actual retrofit, see the Spring 2009 *Solutions Journal* ([www.rmi.org/sitepages/pid592.php](http://www.rmi.org/sitepages/pid592.php).) To see a short informative video RMI produced in partnership with the Empire State Building retrofit team, visit [www.esbsustainability.com/SocMe/?Id=0](http://www.esbsustainability.com/SocMe/?Id=0)). Next on our agenda: to deepen our collaborations with partners Johnson Controls, Jones Lang Lasalle, and the Clinton Climate Initiative, so that the lessons learned in the Empire State Building have the widest possible influence—a commendable goal of its ownership from the start.

### Spinning off a Bright IDEA: Bright Automotive

The past year has seen tremendous change in the auto industry, and RMI continues to drive that change. In January 2008, RMI spun off Bright Automotive ([www.brightautomotive.com](http://www.brightautomotive.com)), with partners Alcoa, JCI, Turner Foundation, and Google, as a for-profit vehicle design and development company. Led by former MOVE head John Waters, who had designed the EV1 and S-10 battery packs in the GM/Delphi world, the firm recruited a small galaxy of exceptional Detroit veterans who, even before the collapse of GM and Chrysler, knew that light vehicles needed to be completely different.

Bright's founders' goal was to create an automotive solution to address the interwoven challenges of "economy, air pollution, and diminishing oil supplies." In the spring of 2009, Bright unveiled a driving prototype of its IDEA concept car—an







innovative and affordable plug-in hybrid-electric light-duty vehicle that can achieve the equivalent of 100 miles per gallon. It's currently configured as a one-ton, five-cubic-meters-of-cargo fleet van for service and delivery, but could later take other forms for other market segments.

The IDEA takes a fresh approach to auto design. "Because we were starting with a clean sheet of paper, we were free to redefine what the car itself does and what it looks like," explained Michael Brylawski, VP of Corporate Strategy for Bright and an RMI alumnus all the way back to the Hypercar Center in the 1990s. "By going into first principles, we looked at making a more productive vehicle." Taking a page from RMI's 18 years of automotive leadership, the IDEA cuts out superfluous weight and drag, thus making its batteries so small that they're affordable—and yielding the first plug-in hybrid that needs no customer subsidy to make a strong business case to the fleet buyer. In short, IDEA shows that the best way to make batteries affordable for electric traction is to need far fewer of them by designing the vehicle properly in the first place.

Bright's IDEA carefully integrated its customers' needs into a versatile, lean, cost-cutting package. Company founders first met with key fleet owners and operators (like PG&E, Cox Cable, and Duke Energy), then led customer-driven design workshops to understand the pain-points of drivers and fleet managers with today's vehicles. Thanks to this hands-on engagement with customers, the IDEA comes equipped with features far beyond radical fuel efficiency (about 100 mpg in the city, versus the normal 12–14)—like a passenger seat that can be converted into a mobile office, and an interactive touchscreen that integrates efficiency and battery-charge feedback, navigation, inventory and job tracking, and other tools for exceptional fleet productivity.

Light-duty vehicles are a great place to start in tackling automotive inefficiency. The vast majority of the light trucks on the road are heavy steel models, almost unchanged for decades. And the demand is out there. Bright aims to begin mass production in 2012, hoping to put as many as 50,000 cars on the road each year while creating 5,000 jobs—and validating RMI's work on vehicle efficiency in a real-world application.



## Deutsche Bank: Demonstrating Leadership in Europe

The U.S. commercial building stock grows only 2 percent a year—in a healthy economy, according to the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE). Clearly, the greatest opportunity for reducing energy use lies within the existing building stock, and RMI has recently started delving into this overlooked area of design and construction. While helping lead the integrative energy retrofit design for the Empire State Building (see p. 19), RMI also consulted on another retrofit that will produce one of the greenest high-rises on earth.

Deutsche Bank in Frankfurt is modernizing and retrofitting its corporate headquarters to make it the world's first renovated skyscraper with a LEED Platinum certification. (The building also met the German green-building rating system (DGNB) standards.) The project started when the company decided to improve its fire protection systems. Since the "twin towers" building would be vacant, the owners thought it a good time for a more comprehensive renovation.

Deutsche Bank engaged RMI starting in 2007. The Institute provided daylighting design, energy modeling, LEED consulting, and general sustainability consulting for the "Greentowers" (see [www.banking-on-green.com/en/content/greentowers.html](http://www.banking-on-green.com/en/content/greentowers.html)). "We were mostly pushing the design team to really optimize and integrate systems," says Project Manager and RMI Principal Architect James Brew, AIA. "The package of measures the bank will implement makes possible a reduction of energy use and carbon dioxide emissions of at least 50 percent."

When finished in 2010, the Greentowers will be two of only a handful of skyscrapers in the world with operable windows. Opening parallel to the façade, they'll come equipped with motorized scissor hinges, making it possible for occupants to enjoy natural ventilation in the 38- and 40-story towers, even on windy days.

Rainwater and graywater will also be collected, treated, and used for outdoor watering systems as well as for toilets and urinals throughout the building complex. More than half the hot water will be heated in a solar thermal panel system. This integrated water concept will reduce water use by 74 percent.

The green features bring attention to the bank and set a global standard for making an active contribution to climate protection. RMI continues to track the project closely.



## Learning to Lead: Climate Corps

Rocky Mountain Institute continues to target key stakeholders and leverage points within the business world. Over the past two years, the Institute has played an exciting role in educating one particular group of future leaders and decision-makers: the “Climate Corps.” In partnership with Environmental Defense Fund’s Climate Corps program, RMI has been helping prepare MBA students for internships at large, energy-intensive businesses around the country. Each summer, these Climate Corps interns take up positions at companies like Yahoo, Cisco, and Dell, where they’re assigned to identify cost-effective efficiency measures that will cut emissions and boost profits. The students first undergo a deep, cross-disciplinary, three-day training session in San Francisco. They learn of the fundamentals of energy efficiency and build a solid foundation for the work to follow. Enlisted by EDF to train the fellows, Rocky Mountain Institute applies seasoned expertise in the areas of heating, ventilation, and air-conditioning (HVAC), commercial building envelope, and data center efficiency. Additionally, each student gets a Climate Corps Handbook co-developed by RMI and EDF, complete with case studies and extensive technical data.

Following the training session, RMI remains on retainer to advise the Climate Corps interns as they delve for profitable opportunities at their respective firms. This work is unique. It influences both business and academia in an unprecedented way. Each of the students—many of tomorrow’s likely CEOs—absorbs a wealth of information demonstrating the critical need for and the value of energy efficiency, then gets to work applying that knowledge. As energy demand increases with intensity, an earnest effort for efficiency must be adopted in all corners of the business world. In showing how companies can create their own rewards through efficiency to these ambitious students, RMI hopes to have a lasting impact on tomorrow’s corporate practices.

## Green Footstep’s Modest Goal: Stop Global Warming, One Building at a Time

If you were designing a building and RMI handed you a custom report that showed you exactly how much your project was affecting climate change, would you be more motivated to reduce your building’s carbon emissions? What if the report showed you how to reduce your emissions through design modifications, and showed how much each modification would achieve? Would that make it easier?



Tomorrow’s business leaders: The Climate Corps interns.





That's what RMI's new tool Green Footstep (<http://greenfootstep.org>) does. An architect or engineer enters information about the project, and Green Footstep calculates the carbon footprint caused or avoided by its site development (the increase or decrease in the capacity of the site to store carbon), construction emissions, and operational emissions. Green Footstep graphs these emissions over any chosen period, indicating the project's lifetime carbon emissions. The user can adjust design targets for the building to change the carbon footprint compared to a baseline. These targets include the percentage of native vegetation on the site, the building's energy intensity, and emissions saved by onsite renewable energy. A report page describes how the carbon footprint of individual projects relates to global climate change goals.

RMI is now in the beta-test phase of the project, developed by Michael Bendewald and Victor Olgay, AIA. Testing is demonstrating the tool's ability to serve as a pedagogical resource for professors, and how the tool can be used to meet the design professions' Architecture 2030 Challenge and set carbon-based goals for design professionals.

This tool has exciting potential to help designers, individually and collectively, create carbon-neutral buildings. After the beta-test period, Green Footstep will offer designers ways to help make the built environment part of the climate solution.



## Winning the Oil Endgame

Ever since RMI published its gamechanging 2004 roadmap for profitably eliminating U.S. oil use by the 2040s (free at [move.rmi.org/oilendgame](http://move.rmi.org/oilendgame)), we've been implementing it by "institutional acupuncture"—inserting needles in selected sites to decongest blockages in the flow of the business logic ([www.rmi.org/sitepages/pid469.php](http://www.rmi.org/sitepages/pid469.php)). Gratifying progress continued in 2008–09:

- Wal-Mart finished saving one-fourth of the fuel used by its heavy-truck fleet, the world's largest civilian fleet. Wal-Mart and its suppliers are on track to raise those fuel savings to 50 percent by 2015. This will pull doubled-efficiency trucks into the market for all to buy, saving 6 percent of all U.S. oil. By then we expect to be well along in implementing tripled-efficiency trucks, raising the savings to 9 percent.
- The Pentagon has begun valuing saved fuel about ten to a hundred times higher, incentivizing innovations that will accelerate the tripling of vehicular efficiency in the civilian sector, which uses over 60 times more oil. With RMI's help, new procedures for "Fully Burdened Cost of Fuel" and "Energy Key Performance Parameters"—both mandated by the 2008 National Defense Authorization Act—are spreading rapidly through DoD, especially at the Service level. The pivotal Feb. 2008 Defense Science Board report we helped prepare ([www.acq.osd.mil/dsb/reports/2008-02-ESTF.pdf](http://www.acq.osd.mil/dsb/reports/2008-02-ESTF.pdf)) is defining new efficiency-centric energy concepts in the Pentagon—the world's largest single buyer of both oil and renewable energy. Retired military leaders, notably RMI Senior Fellow VADM Dennis McGinn (USN Ret.), are also adding a strong new voice to our energy/security linkage ([www.cna.org/documents/PoweringAmericasDefense.pdf](http://www.cna.org/documents/PoweringAmericasDefense.pdf)).
- Boeing's breakthrough competitive strategy with the 787 Dreamliner continued to transform the aviation sector despite launch delays and recession. Perhaps even more importantly, two years after *Winning the Oil Endgame* urged Detroit to follow suit, Ford Motor Company hired the head of Boeing Commercial Airplanes as its own CEO. After three years, in 2008–09 (during most of which RMI's Chief Scientist served on Chairman Bill Ford's Transformation Advisory Council), Ford looked very different than GM and Chrysler. Ford didn't go broke, didn't seek a bailout, and is leading innovation in lightweighting, electric traction, and more in pursuit of competitive advantage.
- Accelerated by RMI's Smart Garage work (p. 16), electric traction is sweeping automaking, and business models to make it pay are spreading rapidly with the help of RMI's Bright Automotive spinoff (p. 20).
- U.S. light-vehicle efficiency is now regulated by size, not weight, encouraging light-but-strong materials that decouple size from weight and thus save lives, oil, and money. We'd helped drive this policy shift in 2006 for light trucks, and in spring 2009, the same shift was approved for cars.
- France's first year of feebates (2008) saw less-efficient cars' sales plummet 42 percent while more-efficient cars' sales soared 50 percent; now a feebate bill is in the U.S. Senate. State legislative interest is growing about RMI's 2007 industry workshop on how to design feebates ([www.rmi.org/images/PDFs/Transportation/Feebate\\_final.pdf](http://www.rmi.org/images/PDFs/Transportation/Feebate_final.pdf)), and the pay-as-you-drive insurance concept is spreading to several states.



## Communications

Doing great work is how RMI drives change; getting others to do the same is how RMI drives impact. RMI's Communications & Media team is all about creating awareness and encouraging adoption of our efforts.

The two main (and linked) communications vehicles used to create awareness this year are publicity and the Internet. Achieving gratifying success, our public relations and media efforts helped to:

- Make RMI a more prominent voice in our areas of expertise—establishing RMI as the go-to expert on energy efficiency in transportation, buildings, and electric and industrial systems.
- Celebrate the successes of Amory Lovins (for example, his Cooper-Hewitt National Design Award, making *Time's* list of the world's most influential 100 people, even *Rolling Stone's* list of individuals who change the world), but also highlighting RMI's other thought leaders.

Public relations and media efforts vary project to project, and are tailored to goal, audience, and choice of media. We have composed many press releases (available at [rmi.org](http://rmi.org)), held topic-driven media roundtables, facilitated interviews with RMI experts, written stories for online and print news outlets, and reached out to a new audience through social media (Facebook and Twitter).

All our projects use these tools, as illustrated by the Empire State Building (ESB; p. 19, [www.esbsustainability.com](http://www.esbsustainability.com)). This retrofit was featured in the *New York Times*, the *Wall Street Journal*, *BusinessWeek*, *Forbes*, and hundreds of other outlets.

The Internet helps get the word out more quickly, widely, and cheaply. For key projects, like those on pp. 10, 15, and 17, new microsites and interactive features provide instant and updated information about our work, as well as a clearinghouse of data and tools designed to encourage widespread adoption.

## Office of the Chief Scientist

RMI's Chief Scientist Amory B. Lovins leads a staff of about eight, coming, at a typical moment in the past year, from Australia, China, India, France, and Sweden plus three Americans. OCS supports the whole Institute, especially its Research & Consulting practice; ensures independence and quality; explores and incubates especially promising ideas; and provides “over-the-horizon radar” so RMI's sharply focused wide-angle lens expands our peripheral vision.

OCS leads two main gamechanging efforts: the “grand synthesis” of Reinventing Fire (p. 6), plus its foundations in 10xE or Factor Ten Engineering (p. 12). These central themes are supported and supplemented by other OCS projects, chiefly:

- Accelerating the Pentagon's adoption, especially in the Services, of two new “strategic vectors”—big ideas that drive the revolution in military affairs, like Speed, Stealth, Precision, and Networking. We call the new vectors Endurance and Resilience. Endurance makes platforms so efficient that they need little or no fuel and power logistics. Resilience makes military electrical supplies invulnerable to disruption through islandable (grid-independent at need), local, mainly renewable generation. These innovations are starting to enter doctrine, strategy, policy, and behavior, directly supporting our mission and accelerating military R&D that speeds far larger civilian savings (p. 25).
- Analyzing the rapidly changing economics of electricity, and tracking the extraordinary progress of distributed generation and end-use efficiency. Based on that analysis, we've published pathfinding papers showing why expanding nuclear power—which can't raise private equity capital despite ~100-plus percent subsidies—would reduce and retard climate protection, because it yields about 2–20 times less carbon reduction, 20–40 times slower, than buying efficiency and micropower instead.

- Getting *Winning the Oil Endgame* and Lovins's 2007 Stanford Engineering School lectures on "Advanced Energy Efficiency" published and widely used in China; increasing China's use of RMI's other intellectual capital; and leveraging new insights gained by RMI about the Chinese experience.
- Updating *Natural Capitalism* and writing a preface for its 10th-anniversary UK edition.
- Participating in the Rippel Foundation-funded "Re>Think Health" consortium redefining health care—an outgrowth of Lovins's keynote of the 2007 annual meeting of the Institute for Healthcare Improvement, exploring how his 1976 reframing of the energy problem could apply to health.

## Development

During fiscal year 2009, a period of unprecedented economic uncertainty, supporters of Rocky Mountain Institute equaled their record contributions of the prior fiscal year, an impressive and humbling show of faith in the importance of our work.

All gifts to RMI, whether general support or restricted, are allocated to projects considered key to our mission and reliant on philanthropic support. Highlighting the year's contributions were first-time, seven-figure gifts from The Robertson Foundation and the Dutch Postcode Lottery (see p. 30), in addition to the continuing invaluable generosity of Fred and Alice Stanback. In all, 2,300 donors and sponsors made gifts totaling \$7.8 million, a full 60 percent of RMI's FY2009 revenue.

This report highlights the powerful work of the Institute's thought leaders, principals, consultants, analysts, fellows, and interns. If you are already an RMI donor, we sincerely thank you and hope that we've earned the continuation of your support. If you have never made a gift to the Institute, we hope this report may move you to do so. In either case, thank you for helping us shift the world from the unsustainable use of fossil fuels to radical energy efficiency and renewables, thereby helping realize our common vision—"a world thriving, verdant, and secure, for all, for ever."

**Douglas G. Laub**

*Vice President, Development*

## Financial Commentary

As for other organizations around the globe, fiscal year 2009 presented new challenges for Rocky Mountain Institute. Following several years of double-digit growth, we found ourselves taking a hard look at our operations, reprioritizing activities, and rethinking investment plans to ensure prudent stability.

We are pleased to report that we fared well during the turbulent economic times and pervasive fiscal uncertainty of 2008–2009. We had our biggest year ever in terms of revenue while significantly trimming our operating costs for tougher times.

FY2009 GAAP revenues of \$13.1 million were slightly ahead of our FY2008 revenues of \$12.7 million. Given the general downturn in philanthropic giving, holding flat from one year to the next felt like a big win. This is especially true considering we actually grew grants and donations slightly, to \$7.8 million, up almost \$0.7 million from the previous year.

Revenues from fees for professional services supporting our mission were \$4.7 million, slightly below our FY2008 performance but in line with our overarching desire to maintain revenues from such programmatic enterprise at 35 to 40 percent of total revenues. Throughout the year, we kept both our Energy and Buildings teams' consulting pipelines full, and executed several high-impact projects described earlier in this report.

As the year progressed and the economy worsened, RMI applied its own tools and philosophies to itself, finishing the year significantly more efficient and focused on driving impact. In October 2008, as it became clear that the economic environment had shifted, RMI embarked on an unprecedented evaluation of its operations to streamline our systems, eliminating non-essential expenses and lower-impact programmatic efforts wherever possible. We ultimately developed an aggressive, Institute-wide plan to reduce expenses during the rest of the fiscal year. The rigor with which we pursued this effort and resulting actions forced a sense of discipline and conservatism that we carry with us as we embark on our aggressive new strategy.

**Ned Harvey**

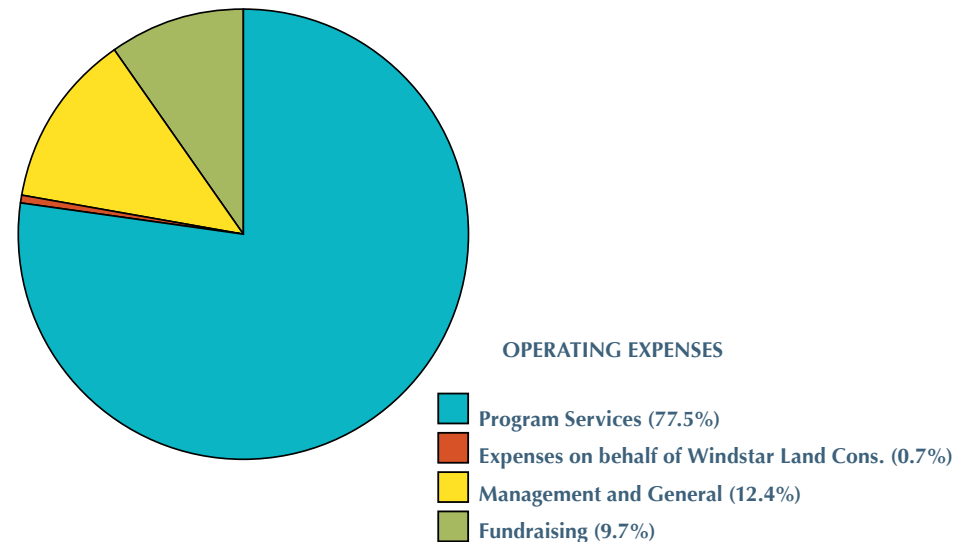
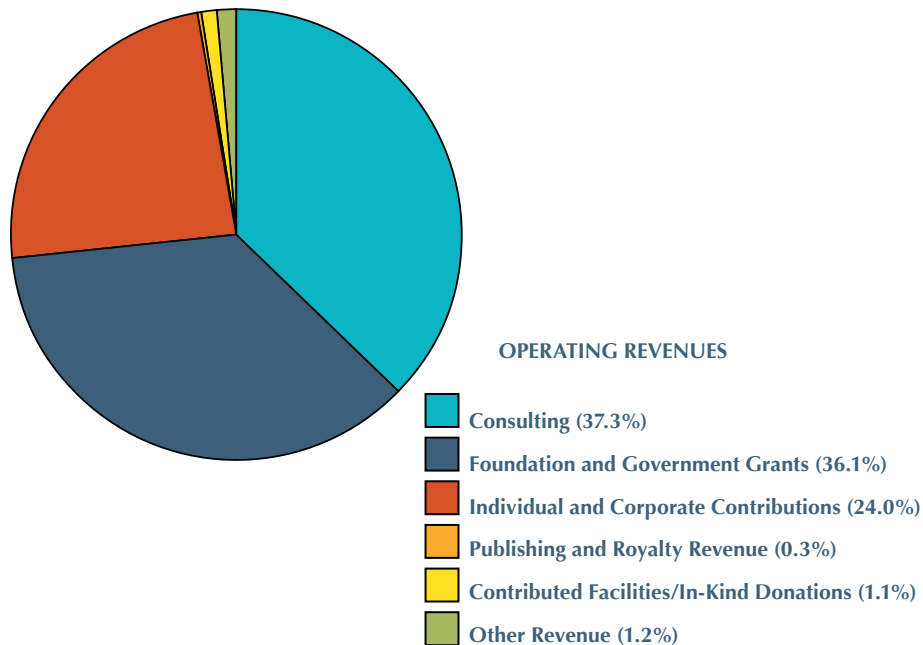
*Vice President, Operations*



## Balance Sheet—Audited (thousands of current dollars, GAAP basis; RMI's Fiscal Year is 1 July–30 June)

<b>ASSETS</b>	<b>6/30/09</b>	<b>6/30/08</b>	<b>6/30/07</b>
Cash and Marketable Securities	\$412	\$149	\$240
Capital Reserve Fund	4,508	4,800	4,622
Grants Escrow Fund	1,258	1,051	1,255
Accounts Receivable	1,120	2,037	1,726
Grants and Pledges Receivable	269	464	876
Notes Receivable	—	—	—
Inventory	48	49	39
Property and Equipment (Net)	1,726	1,679	1,689
Assets Restricted for Endowment	673	722	741
Other Assets	435	280	209
<b>TOTAL ASSETS</b>	<b>\$10,449</b>	<b>\$11,231</b>	<b>\$11,397</b>

<b>LIABILITIES AND NET ASSETS</b>	<b>6/30/09</b>	<b>6/30/08</b>	<b>6/30/07</b>
<b>CURRENT LIABILITIES</b>			
Accounts Payable	\$542	\$746	\$568
Compensated Absences	340	279	204
Other Accrued Expenses	1,191	782	622
Deferred Revenue	2	119	—
Line of Credit	950	921	1,061
<b>Total Current Liabilities</b>	<b>3,025</b>	<b>2,847</b>	<b>2,455</b>
<b>Long-Term Liabilities</b>	<b>774</b>	<b>1,073</b>	<b>1,135</b>
<b>TOTAL LIABILITIES</b>	<b>3,799</b>	<b>3,920</b>	<b>3,590</b>
<b>NET ASSETS</b>	<b>6,650</b>	<b>7,311</b>	<b>7,807</b>
<b>TOTAL LIABILITIES AND NET ASSETS</b>	<b>\$10,449</b>	<b>\$11,231</b>	<b>\$11,397</b>



## Statement of Activities—Audited (thousands of current dollars, GAAP basis)

	<i>FY 08–09</i>	<i>% Operating Revenue</i>	<i>FY 07–08</i>	<i>% Operating Revenue</i>	<i>FY 06–07</i>	<i>% Operating Revenue</i>
<b>OPERATING REVENUES AND SUPPORT</b>						
Consulting	\$4,843	37.3%	\$5,227	41.0%	\$4,464	46.6%
Foundation and Government Grants	4,690	36.1%	2,570	20.2%	2,353	24.6%
Individual and Corporate Contributions	3,113	24.0%	4,573	35.9%	2,352	24.6%
Publishing and Royalty Revenue	41	0.3%	41	0.3%	93	1.0%
Contributed Facilities/In-Kind Donations	135	1.1%	139	1.1%	135	1.4%
Other Revenue	162	1.2%	186	1.5%	180	1.9%
<b>TOTAL OPERATING REVENUES AND SUPPORT</b>	<b>12,984</b>	<b>100.0%</b>	<b>12,736</b>	<b>100.0%</b>	<b>9,577</b>	<b>100.0%</b>
<b>OPERATING EXPENSES</b>						
Program Services	10,062	77.5%	9,265	72.7%	6,648	69.4%
Expenses on behalf of Windstar Land Conservancy	86	0.7%	71	0.6%	97	1.0%
Management and General	1,610	12.4%	1,798	14.1%	1,932	20.2%
Fundraising	1,258	9.7%	1,096	8.6%	830	8.7%
<b>Total Operating Expenses</b>	<b>13016</b>	<b>100.2%</b>	<b>12,230</b>	<b>96.0%</b>	<b>9,507</b>	<b>99.3%</b>
<b>OPERATING MARGIN</b>	<b>(32)</b>	<b>-0.2%</b>	<b>506</b>	<b>4.0%</b>	<b>70</b>	<b>0.7%</b>
<b>NON-OPERATING REVENUES</b>						
Gain/(Loss) on Sale of Assets	—	0.0%	75	0.6%	—	0.0%
Gain/(Loss) on Sale of Investments	(262)	-2.0%	(218)	-1.7%	158	1.6%
Investment Income	185	1.4%	224	1.8%	255	2.7%
<b>Total Non-Operating Income</b>	<b>(77)</b>	<b>-0.6%</b>	<b>81</b>	<b>0.6%</b>	<b>413</b>	<b>4.3%</b>
<b>NON-OPERATING EXPENSES</b>						
Depreciation	277	2.1%	161	1.3%	117	1.2%
Prior Period Adjustment	0	0.0%	700	5.5%	—	—
Facilities Contributed Expense	197	1.5%	135	1.1%	135	1.4%
Interest Expense	78	0.6%	87	0.7%	148	1.5%
<b>Total Non-Operating Expenses</b>	<b>552</b>	<b>4.3%</b>	<b>1,083</b>	<b>8.5%</b>	<b>400</b>	<b>4.2%</b>
<b>CHANGE IN NET ASSETS</b>	<b>(661)</b>	<b>-5.1%</b>	<b>(496)</b>	<b>-3.9%</b>	<b>\$83</b>	<b>0.9%</b>



## Rocky Mountain Institute Awarded €1 Million by Dutch Postcode Lottery

On 30 March 2009, RMI received €1,000,000, or US\$1,316,000, in funding from the Dutch Postcode Lottery. RMI learned of this funding at the Dutch Postcode Lottery's annual gala in February, where Dutch Prime Minister Balkenende gave the keynote address. The funding is aimed to support RMI's programmatic work, including Factor Ten Engineering (see p. 12), Transformational Trucking work (see p. 15), and the Next-Generation Utility (see p. 14).

Since 1989, the Postcode Lottery has been raising funds to support organizations working in the fields of conservation, environmental protection, developmental aid, and human rights.

Fifty percent of its gross income goes to charity. The lottery has grown to become the Netherlands' biggest charity lottery and supports 64 charitable organizations. Since its founding, the lottery has disbursed more than €2.7 billion to beneficiaries.

RMI was awarded the funding at a yearly ceremony in The Hague attended by RMI CEO Michael Potts and Executive Director Marty Pickett.

After learning of the funding, RMI Founder Amory Lovins noted, "RMI is grateful for and excited about this first-time funding from the Dutch Postcode Lottery, a longtime leader in supporting innovative charities all over the world."



## Seminal Funding from the Robertson Foundation, Stanbacks

RMI received a first-time grant of \$1.5 million from the Robertson Foundation to support a major strategic planning effort aimed to sharply focus RMI's resource efficiency mission. The results of the strategy, described elsewhere, clarified an overarching goal for the Institute: to speed the transition to a world of abundance without the use of fossil fuels to generate energy.

The Robertson Foundation invests in leading non-profit organizations across a number of program areas. A key focus of its environmentally oriented grantmaking is the fight against climate change, where the Foundation supports efforts to significantly reduce greenhouse gases in economically efficient ways. The Foundation's interests and RMI's work closely align in their market-based and solutions-oriented approaches.

This year's largest individual donor gift came from long-time friends and supporters, Fred and Alice Stanback of Salisbury, North Carolina. The Stanbacks' generous \$1,000,000 donation, given through the Foundation for the Carolinas, was instrumental in RMI's influential energy efficiency work.



RMI's Marty Pickett and Michael Potts with Marieke van Schaik, Managing Director, Dutch Postcode Lottery (center).

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**Mary Caulkins**, Chair, Development Committee; Denver, Colorado. BA, Pitzer College. Artist, philanthropist, lead investor in one of the largest LEED-H residential and solar community projects in the nation, in Mosier, Oregon. Director of the Caulkins Family Foundation.

**Thomas Dinwoodie**, Richmond, California. BS, Structural Engineering, Cornell; MS, Mechanical Engineering, MIT; MA, Architecture, UC Berkeley. Founder and CTO, SunPower Corporation Systems, a leading and global supplier of PV products and systems; founder; former CEO and Chairman of PowerLight. Author of numerous papers; over 30 patents on building-integrated photovoltaic and related products.

**Michael Fain**, Aspen, Colorado. University of Chicago. Mechanical and Optical Engineer and Project Manager, various aerospace companies; founder and former President, Alphametrix, Ltd., manufacturer of precision light-measuring equipment. Cofounder and former Chairman of Computers for Kids Foundation; Director, Aspen Center for Physics and Independence Pass Foundation; Member of National Council of NPR and Anderson Ranch Arts Center; co-author, with wife Judith Barnard, of eleven contemporary novels.

**Suzanne Farver**, Chair, Finance Committee; Woody Creek, Colorado. BA, Grinnell College; JD, University of Denver; ALM in Environmental Management, Harvard. Former Executive Director, Aspen Art Museum; Former Director of Development and Public Relations, Anderson Ranch Arts Center. Trustee of Denver Art Museum and Spiritual Paths Foundation; Chair and Trustee, Aspen Art Museum Foundation.

**Arjun Gupta**, San Francisco, California. BA Economics, St. Stephen’s College; MS and BS Computer Science, Phi Beta Kappa, Washington State; MBA, Stanford; Founder and Managing Partner of Telesoft Partners, a special situations venture capital firm; Director, Calient Networks, LogLogic, Nexant and Validity Sensors. Henry Crown Fellow and Trustee of the Aspen Institute.

**Craig Kennedy**, Chair, Audit Committee; Washington, DC. AB, Civilization Studies, University of Chicago; MBA University of Chicago; MA, Social Service Administration, University of Chicago. President, German Marshall Fund; former President, Joyce Foundation; employed with Richard J. Dennis, a Chicago investor and philanthropist; created a consulting firm working with nonprofit and public-sector clients, including City of Chicago and Environmental Defense Fund. Director, Thomas B. Fordham Foundation; independent trustee, Van Kampen mutual funds.



**Amory B. Lovins**, Cofounder (1982), Chairman, and Chief Scientist of RMI; Snowmass, Colorado. MA, Oxford (by special resolution); 11 honorary doctorates; Hon. AIA; Fellow, Royal Society of Arts; Foreign Member, Royal Swedish Academy of Engineering Sciences; Chairman Emeritus, Fiberforge Corporation (an RMI spinoff); physicist, author, consultant; visiting professor (most recently at Stanford University's School of Engineering, 2007).

**Reuben Munger**, Boston, Massachusetts. BA, Politics and Economics and B.S., Business Administration *magna cum laude*, Washington and Lee University. Chairman, Bright Automotive (an RMI spin-off); founder and Managing Partner, Vision Ridge Partners, LLC; former Managing Director at The Baupost Group, LLC, a \$15-billion investment firm. Chair of the Governing Board of Edvestors and Chairman of the Massachusetts Advisory Board of Stand for Children.

**Martha C. Pickett**, Executive Director and General Counsel of RMI; Snowmass, Colorado. BA, Guilford College; MCDP, College of Architecture and Planning, University of Colorado, Denver; JD, University of Denver. President, Windstar Land Conservancy; member of Advisory Board to Catawba College's Center for the Environment.

**Michael Potts**, CEO of RMI; Denver, Colorado. BA, Beloit College. Former CEO, American Fundware; Vice President of the Public-Sector Solutions division at Intuit. Member Colorado Cleantech Industry Alliance, Van Gilder Insurance Corporation, and Community Banks of Colorado.

**Chris Sawyer**, Atlanta, Georgia. BA, UNC; Master of Divinity, Yale; JD, Duke. Partner, Alston & Bird since 1985, specializing in corporate governance, real estate, and conservation issues. Former Chairman, Trust for Public Land; Chairman of the Chattahoochee River Coordinating Committee; Director, Industrial Developments International and EDAW, one of the world's largest land-consulting firms; Chairman, Board of Advisors, Yale Divinity School.

**Suzanne H. Woolsey**, Lead Trustee; Chevy Chase, Maryland. BA, Stanford; MA, PhD, Harvard. Former COO and Chief Communications Officer, The National Academies of Science, Engineering, and Medicine. Member, Council on Foreign Relations; Director of the German Marshall Fund, Institute for Defense Analyses, Van Kampen Mutual Funds, Colorado College, Neurogen Corporation, and Intelligent Medical Devices, LLC; former Associate Director, U.S. Office of Management and Budget; former consulting partner, Coopers and Lybrand; former member, *Washington Post* editorial board.

**Don Woods**, Chair, Investment Subcommittee; Denver, Colorado. BA, Finance, University of Denver; Master's in International Business and Economics, City University, London. Founder, Chairman, President, and CEO of Community Bankshares, Inc. Board Member of the Colorado Chapters of The Nature Conservancy and of the Young President's Organization, the Colorado Watershed Network, and Colorado UpLift.



## RMI Staff

### Chief Executive Officer

Michael Potts  
Jane Brown (Executive Assistant)\*  
Carrie Sullivan (Executive Assistant)\*\*

### Chief Scientist

Amory B. Lovins  
Lafrances Morgan (Executive Assistant)\*  
Mary Kent (Executive Assistant)\*  
Megan Shean (Executive Assistant)\*\*  
Lionel Bony (Director)  
Nathan J. Glasgow\*\*  
Imran A. Sheikh\*

### Executive Director

Martha C. Pickett, JD  
Michelle De Beque (Assistant)\*  
Richlyn Pavcek (Assistant)\*\*

### Research & Consulting

Michael Brylawski (Vice President)\*  
Stephen Doig, PhD (Vice President)  
Gregory Franta, FAIA (Vice President;  
deceased)\*  
Robert Hutchinson (Program Director)\*\*  
Elaine Adams, AIA  
Mathias Bell  
Erik Bonnett  
Aron Branam\*  
Steven Brauneis

James Brew, AIA  
Cara Carmichael  
Coreina Chan  
Kristine Chan-Lizardo  
Aalok Deshmukh\*  
Mark Dyson  
Caroline Fluhrer  
Mark S. Gately  
Eric Greensfelder\*\*  
Lena Hansen  
Eric Harrington  
Josh Hathaway  
Darrell James Hubler  
Stephanie Johns\*  
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Hiroko Kawai  
Michael Kinsley  
Virginia Lacy  
Luisa Lombera  
Matthew Mattila  
Eric Maurer  
Natalie Mims  
Ashley Muse\*  
Samuel Newman  
Michael Ogburn\*  
Victor Olgyay, AIA  
Chad Riley  
Allison Rutter\*  
Laura Schewel\*  
Cherlyn Seruto  
John Simpson, PE  
Mike Simpson  
Joshua Traube\*  
Kendra Tupper, PE

Kitty Wang, PE  
Eric Wanless\*

### R&C Administrative Support

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Monika Magenheim

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Robert Wilson (Director)  
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Noah F. Buhayar\*  
Cameron M. Burns  
Cynthia S. Cash\*  
Rebecca Cole\*\*  
Jared M. Comis\*  
Andrew Demaria\*  
Jeffrey John\*  
Carrie Jordan\*\*  
S. Christian Low  
Cory J. Lowe  
Molly Miller  
Maria Stamas\*  
Kelly Ann Vaughn

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Siu Chan  
Katherine Temple

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Betsy Leach  
Latham Leonaitis\*  
Hector Maglione  
Chris Senkier

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Rigoberto Hernandez  
Stan Kunard\*  
Ethel Lossing\*  
John Roberts

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Ned L. Harvey (Vice President)  
Tara Kelly\*

## Senior Fellows

Robert Bishop, P. Eng.  
Bill Browning, Hon. AIA  
Michael Brylawski  
Nancy Clanton, PE  
Jonathan G. Koomey, PhD  
Vice Admiral Dennis V. McGinn (USN, Ret.)  
Commander Eric Rasmussen, MD, MDM,  
FACP (USN, Ret.)  
Peter Rumsey, PE  
Norman Smith  
Joel Swisher, PhD, PE  
Bob Wilkinson, PhD

## Interns and Fellows '08–'09

Maj. Leslie S. Albers (USMC, Ret.)\*  
David Anderson\*  
Nicole Argyropoulos\*  
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Capt. Andrew Sloan (US Army, Ret.)\*  
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Tali Trigg\*  
Jennifer A. Walton\*  
Brent Wanner\*  
Jennifer Wilson\*  
Cindy Wu  
Aris Yi  
Eric Youngson\*  
Wenjie Zhuang\*

\* former staff

\*\* staff who joined after FY2008–2009



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