



# ROCKY MOUNTAIN INSTITUTE

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## NEWSLETTER

### CITIZENS KANE

#### *A Town Starts to Renew Itself*

On any given day, logging trucks rumble through Kane, Pennsylvania's Victorian town center. It's a little rundown, though still vibrant, with people on the street and storefronts filled with merchandise. The surrounding forest and clean air attract a growing market for tourism. The town has been spared the assault of big-box retail and urban sprawl, but it faces what is perhaps a greater threat: the decline of an industry that has defined the local economy for more than a century.

The American Dream once thrived in this community of less than 5,000 in northwestern Pennsylvania. Here, for generations, families harvested abundant hemlock and white pine from the surrounding Allegheny National Forest. When that crop was logged out between 1870 and 1910, the town became famous for its black cherry, used primarily in high-end furniture. Now, Kane and many other rural communities are facing the dark side of a dream founded on extraction: the inherent unsustainability of many resource-based economies. What happens when the dream starts to fade?

#### A UNIVERSAL STORY

The story of Kane encapsulates the thorny problems faced by hundreds of communities struggling with the jobs *vs.* environment debate: environmentalists plead for saving what's left, harvesters defend jobs and rights, and scientists offer opinions support-

ing both sides. Kane has all these conflicts, but it is offering a new twist: hope.

#### THE CALM BEFORE THE STORM

People facing the decline of their livelihood often look for someone to blame. High on the list are government, for limiting access to resources, and environmentalists, for bringing lawsuits that do the same. But Kane citizens are an independent lot. For the most part, people keep their opinions to themselves and leave decisions up to those in



Michael Kinsley

charge. Historically, townspeople haven't seemed particularly interested in change and new ideas—not a particularly ripe climate for Economic Renewal.

But in early 1998, a few citizens heard that the Heinz Endowments would make RMI's Economic Renewal Program (ER) available in the region. They requested ER, and RMI agreed. Shortly thereafter, all hell broke loose.

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## UNITED WE SOLVE

By L. Hunter Lovins, Executive Director

At RMI, we've never been very protective of our sandbox. When others seem to have a good idea, we ask them to come play. Our efforts in Corporate Sustainability, Economic Renewal, and the Systems Group on Forests have been successful expressions of that philosophy. And our approach to intellectual capital is the same: we put our Hypercar research into the public realm rather than keeping it proprietary—it's the quickest way to make things happen.

In keeping with that philosophy, from time to time the Institute will bring together leading thinkers to address what we consider pressing issues. In 1994, for example, we met with some of the best minds then working on sustainability. We wanted to answer the question: "Will business be the best leverage point for change in the future?" ("Turning Industry on its Head," fall/winter 1994.) Dana Meadows, David Orr, Paul Hawken, Amory Lovins, and I agreed it was.

Our next question follows logically: How do you go about changing business? To help answer that one, a small working group of organizations met recently at RMI. Representatives from RMI; Interface Inc., the commercial-interiors materials firm leading the next industrial revolution; One World Learning, which is dedicated to creating cultural change within business; and The Natural Step, which has been credited internationally with having laid some of the foundations of sustainability—all braved a snowstorm to explore ways we can support each other.

From that meeting came an agreement to collaborate. The first chance may be at an Interface factory in Atlanta, which has committed to become the most sustainable facility in the company, maybe in the world.

The meeting also furthered a new approach I'm proposing, one that tries to avoid pigeonholing problems. It has long troubled me that RMI's response to inquiries is often determined by which gatekeeper happens to get the call, or the caller's perception of the problem he or she needs solved.



*PERSPECTIVES*

And yet, common sense tells us that narrowly defining problems isn't smart. In any discussion of such complex issues as corporate strategy or environmental policy, the outcome is best served by broadening the inquiry. You might call our new approach a "unified practice." For want of a better name, that's what we're calling it in-house.

This means that for openers, the RMI staff has to get better at working together. We tried to encourage this some years ago when we consolidated the research department, but there's a human tendency to break things down into digestible bites. Thus, our transportation division became the Hypercar Center, even though Hypercars are clearly only part of a larger solution. We also want our Hypercar guys to be able to talk knowledgeably about Economic Renewal, and vice-versa.

Then we'll have to broaden our network. RMI can't (and doesn't want to) hold itself out as the sole solver of complex problems. So we've begun holding discussions with organizations that do things RMI doesn't do—like management consulting, for example. We're developing and expanding formal relationships with diverse allies through a "virtual network" of experts.

Of course, it may turn out that a client's needs are basic, like a lighting analysis and retrofit. We'll continue to do such work. But we'll keep in mind the interconnections, just in case the thread a client asks us to pull happens to connect to the rest of the sweater. It usually does.

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### THE TIMBER DEBATE EXPLODES

Unexpectedly, the national timber debate flared in Kane when a regional environmental organization appealed a nearby federal timber sale. Not only were jobs seen as threatened, but over two million dollars in expected federal revenues to local schools and government suddenly evaporated, since a federal rule allocates a portion of timber sales to local government.

Characteristically, RMI hoped that the controversy would offer a silver lining through heightened interest in efforts to strengthen the local economy. It may have, but the angry local response to the legal action also spawned distrust and retrenchment. Loggers wondered why a group like RMI turned up (apparently) right after the appeal. Was it some kind of conspiracy to replace the timber economy with something else?

RMI's Michael Kinsley proceeded to train a small group of Kane citizens in the Economic Renewal community planning process. This core group included local teachers, small businesspeople, and three residents associated with wood-products businesses. Their goal was not to make or guide community decisions, but to conduct a series of meetings that would result in several projects to strengthen the community and its economy.

After a few months spent mobilizing the public, the group held its first meeting in March 1998. There, Kinsley presented practical examples of sustainable development. Suspicious loggers asked him questions intended to expose RMI's supposed tree-hugging proclivities. Kinsley's evenhandedly empathic responses were interpreted by the few attending environmental activists as support for the timber industry. They also incorrectly equated RMI's collaborative planning process with efforts elsewhere to decide national forest policy locally—an approach, critics claim, that allows timber companies to circumvent federal legislation and dupe locals. RMI found itself caught between a skidder and a hard-up place, distrusted by both sides. ("The Kane Mutiny," Summer 1998.)

Even as this newsletter goes to press, the battle rages. Recently, a critic of RMI's work in Kane sent out a letter to numerous stakeholders claiming that the Institute is conspiring with the Heinz Endowments to log the Allegheny National Forest. An activist who has long fought for the protection of the Forest wrote RMI concerned that the Institute is creating a situation whereby local environmental voices will be shut out. He wrote: "I see...RMI...as interfering with the democratic process of public debate that is so essential to maintaining the integrity of this country. It is this debate that the [forestry] industry fears." (Read on for our take on this concern.) No one said this would be easy. Trying to be evenhanded in a polarized community has always been treacherous. But fifteen years of work in similar communities has given us the confidence that the pain of the process is worthwhile.

### THE PEOPLE TAKE ACTION

In response to the initial controversy, actions spoke louder than words. The core group proceeded with the rest of the ER planning process, without the participation of either side of the timber debate. Fortunately, Kane's middle ground proved to be well populated. Participants chose five projects (described below), only one of which related to the timber industry, and that only distantly:

- *Cleanup and beautification of the community's entrances.* The municipality (called the "Boro"), whose Council was inspired by citizen support shown during the ER process, purchased an ugly industrial site at one town entrance, planning to clean it up. At another entrance, volunteers and inmates from the nearby minimum-security prison used donated equipment to collect trash, revegetate landscape, and install signage. Next summer, a trail and a gazebo will be added. "When the community decides to pull together," said project leader and newly appointed Boro Councilor (and RMI "trainee") John Galvin, "it's really exciting." Though the project is small, it has three qualities that

are critical to jump-starting development: high visibility, numerous participants, and quick completion.

- *Street enhancement.* Kane's glory days are reflected in its historic Main Street, though many historic façades are crumbling or obscured by '50s-era plastic and plywood. Using a Forest Service grant, the Main Street Committee hired a local downtown consultant to conduct a consumer survey, a building inventory, a business development workshop, and develop a new street design. Sounds like the same old, same old, right? To some extent, it is. But something profound is informally taking place: the community is reinvesting in itself. Recently, one building owner spontaneously tore the ugly façade off his building, exposing the beautiful old brick beneath—an indicator of the momentum now underway.
- *A community center with emphasis on youth.* With a goal of eventually developing a large multi-use facility, the sponsoring committee tested its youth-center idea in an existing church building, to prove that youth would come. Next, they bought an empty Main Street storefront with the help of \$3,500 in Heinz Endowment funds and \$20,000 from the local state legislator. (When volunteers cleaned the building, local restaurants, unsolicited, provided sandwiches and pizza.) The committee has just begun a 92-day, \$92,000 fundraising effort to complete the renovation.
- *Promoting tourism.* Using a \$9,000 U.S. Forest Service grant matched by \$2,000 in Heinz Endowment funds, the tourism committee hired a consultant and is developing a brochure and logo.
- *Vocational technical classes, especially for youth.* A committee is considering a curriculum developed in British Columbia for those hoping to enter wood-products industries.

Though modest, each of these projects will move Kane in the direction of greater economic diversity, which leads to sustainability. Each is sensitive to the environment and the community, not just jobs and income—but each supports these widely

shared goals too. Little by little, step by step, the compatibility of seemingly conflicting objectives will be proven on the ground.

### IT'S ALL IN THE PROCESS

The most hopeful signs in Kane come not from these tangible projects, but from the creation of a permanent new organization unique in Kane's history—the Kane Area Revitalization Enterprise. KARE is an independent community action organization, many of whose members were trained by RMI. It seeks more creative economic options than have been previously considered, and its mandate is to involve the community in decision-making. Does it have a chance? One KARE member was recently appointed to the Boro Council, and others plan to run.

Ultimately, as Kane shows, the Economic Renewal process is about dialogue, and tapping the power of local minds. If an "opening up" of the community is all RMI achieved, that is significant progress toward sustainability. The fact is, the environment will never be taken seriously in a community with closed decision-making, just as Russian restructuring (*perestroika*) was not possible without also creating openness (*glasnost*). Therefore, the *process* of approaching sustainability is an important part of the outcome.

It's not that nobody cared in the past; it's that nobody cared to intervene. Now people are publicly discussing important issues—a sea change in the way the community tackles problems. At first glance that may seem insignificant. It isn't. It's the stuff of revolutions.

—MICHAEL KINSLEY AND RMI STAFF

*Kane's success would not have been possible without RMI's local partner, the Headwaters Resource Conservation and Development Council, whose coordinator, Eric Carlson, kept in close touch with the planning process and provided crucial technical and financial support for Kane's chosen projects.*

## ENERGY

## UTILITY UNPLUGGED

### *RMI Helps Kill Another Power Plant*

When Kevin Costner wanted to film Eden for the movie *Waterworld*, he chose Hawai'i. But no Eden is without its serpents. In Hawai'i, they often take the form of power plants. Recently, RMI went back to work battling those supply-side dragons, this time on the hauntingly beautiful island of Maui.

Since 1995, Maui's local utility, MECO (Maui Electric Company), has been planning to build the Waena oil-burning power plant in central Maui. Defending the proposal, MECO cited continued annual electricity demand growth of 2.6 percent and expected growth as high as 4 percent, which would exceed present capacity in a handful of years.

Meanwhile, a coalition of tiny community groups, led by Maui Tomorrow, a nonprofit citizen advocacy group, has been fighting the proposal. It argues that the plant—burning dirty fuel oil high in metal contaminants, volatile organic chemicals, and sulfur—would pollute cane fields and high-priced resorts, as well as the intervals where tourists land at the airport. At full buildout, the plant would require 44 fuel tanker truck visits per day. To make matters worse, the utility has asked for a change in zoning rights to build the plant on prime agricultural land. In September 1997, Maui Tomorrow asked RMI for help.

#### ARGUING FOR A NEGAPLANT

Research Scholar Rick Heede, an RMI veteran and energy specialist, prepared testimony for the Maui County Council. His analysis showed that though the utility had performed an Environmental Impact Statement (EIS) on the project, the study dismissed demand-side management (energy efficiency and load management) programs and renewable energy as insufficient. It was unclear why. In fact, in a 1993 report, MECO backed demand-side man-

agement, urging the development of "...aggressive and achievable DSM programs that ...substitute for the need for new generation capacity." That's music to RMI's ears. But the aggressive program was never implemented, even though opportunities for DSM in Hawai'i are huge—as the same MECO report understates, "DSM has not been aggressively pursued in Hawai'i." (To its credit, MECO's residential solar hot water program is a great success. RMI's testimony urged its expansion.)

#### GIVE DSM A CHANCE

Heede's research found that growth in electricity use is not what it appears. Due in part to the collapse of the Asian economy, demand growth had fallen to only 0.5 percent in 1997, a good 3 percentage points below projections. To make the case for a "nega-plant," RMI's testimony noted that the average cost per saved kilowatt-hour (kWh) in the U.S., according to the Electric Power Research Institute, ranges from 2.1 to 3.0 cents. (The best designed programs cost far less.) This is less than the 3.4 cents per kWh that MECO pays just for fuel, ignoring capital costs, operation, and maintenance.

The new plant, on the other hand, would cost \$417 million, and increase residential customers' electricity prices—already some of the highest in the U.S. at 12 cents per kWh—by 1.76 cents. In essence, MECO is planning to spend \$4,600 for each of Maui's 91,000 residents over the next 20 years. Investing less money in a portfolio of more aggressive but less costly electricity savings plus renewables makes more sense.

For example: the Draft EIS estimates that the installed cost of windpower in Hawai'i would range from \$1,050 to \$1,280 per kW, which compares favorably with the \$1,724 per kW projected for the

Waena plant, especially considering that the wind turbines, though they run fewer hours, use no fuel. MECO has tried windpower, but its 340-kW project was decommissioned due to technical problems.

Outside sources say the project was set up to fail: "Hawai'i wind developments are the perfect example of what not to do in windpower," says expert Steve Smiley. Wind has a constant cost, saves fuel, avoids pollution, and increasingly is proving to be what customers want. Moreover, Hawai'i is a prime location. Smiley notes that "there is good potential on Maui for windpower. On a national scale, Hawai'i rates pretty high—high enough to justify a windfarm ten years ago. There's also great potential for small and community wind projects as well, because Hawai'ians don't need much electricity. A small windmill could serve half a dozen homes."

#### MISS PIGGY'S FOURTH LAW

In sum, RMI's testimony suggested that MECO's plan might violate Miss Piggy's Fourth Law—"Never try to eat more than you can lift"—and it reminded us of the old supply-side battle cry: "Drill Rigs and Battleships are the Answer!" RMI's response is always the same: what was the question? Does Maui—one of the most beautiful places in the world—want hot showers and cold beer, or power plants?

It wasn't until the fall—when RMI's assistance moved from Rick Heede's crowded office to the lush tropical paradise of Maui—that the battle really heated up.

Since Hunter Lovins was in Hawai'i in October, she called Maui Tomorrow to see if she could help. They quickly set her up with a packed agenda of speeches and meetings. Maui Tomorrow also filmed her testimony for the actual hearing. Before she left, the group asked that she be avail-

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able by phone for the hearing.

Hunter recalls: "From the administrative office of the Basalt (CO) fire barn, where I was in a board meeting, I spoke for almost an hour at the hearing. Maui Tomorrow had gotten the community out in force. It was standing room only, and so many folks wanted to speak that the hearing lasted a week. When it finally ended, Amory [Lovins] and I were at another meeting in Boulder. There, I held onto the phone for several hours as others spoke, then Amory and I tag-teamed to answer Maui County Council members' questions. We rang off without much hope, since Mark Sheehan of Maui Tomorrow had told us that he'd counted votes and it didn't look good."

But as Hunter was sharing a drink with the board members of E SOURCE after a long day, her cell phone rang. It was Sheehan: the motion to change the zoning from agricultural to industrial use for the new power plant had failed for lack of a second. It was a massive defeat of the plant.

### A WIN—FOR NOW

Victory! Was it RMI's intervention? Maui Tomorrow's rallying the community? A sudden blossoming of clear-headedness? We may never know. But the lion's share of the credit goes to the local folks whose grit and hard work turned the tide.

Regardless, voting against the plant was certainly the right decision. The fight had boiled down to what kind of place Maui wants to be. By changing zoning to allow for power plants when cheaper, cleaner options exist, the County Council would, in effect, be encouraging MECO to spend money in a way that is not economically optimal for the company, its shareholders, and the people of Maui County, not to mention the earth. The future, Council members realized, is choice, not fate.

Of course, proposed power plants, like horror-movie villains, have a nasty habit of coming back to life. In fact, this is all eerily reminiscent of a proposal to build two similar plants on the Big Island's North Kohala coast. There, RMI's testimony was instrumental in convincing the Public Utilities Commission to dismiss Hawai'i Electric

Company's application. (See the spring and summer 1996 newsletters.)

MECO will probably bring another proposal to the new Council recently seated. But there's hope. The utility has joined E SOURCE, RMI's spinoff that provides information on advanced electrical efficiency. And MECO has hired a new DSM director, citing end-use efficiency as a priority. Best of all, Maui Council may launch a comprehensive community energy planning effort. In the meantime, the Institute has offered to help Maui Tomorrow in any way it can. Who knows? "RMI West"—that February daydream of many an RMI employee—may one day become a reality.

—AUDEN SCHENDLER

## From Here to Hydrogen

On 8 April, Amory Lovins and Brett Williams presented "A Strategy for the Hydrogen Transition" at the National Hydrogen Association's 10th Annual U.S. Hydrogen Meeting in Tyson's Corner, Vienna, Virginia. The paper argues that convergent trends in several industries can create a rapid, profitable commercialization path for fuel cells and hydrogen fuel, overcoming many of the commonly assumed hurdles standing in the way of a leapfrog to cleaner, more renewable, and climatologically benign cars and buildings. (See "Fuel for Thought," spring 1997.) The required—and available—ingredients are: (1) a huge market for fuel cells that would generate heat and electricity in buildings (which use two-thirds of U.S. electricity); (2) industrial niche markets where reliable power is critical; (3) direct-hydrogen-fueled fuel-cell vehicles—particularly fuel-cell Hypercars; and (4) the synergies among (1)–(3). Mix, stir, and the future might unfold sooner than we thought. "A Strategy for the Hydrogen Transition" can be ordered from RMI's website at [www.rmi.org](http://www.rmi.org), or downloaded free from [www.hypercar.com/go/whatfgo.html](http://www.hypercar.com/go/whatfgo.html).

## THE CAPE OF GOOD HOPE

As if Hawai'i weren't exotic enough for RMI's energy work, in February, Research Scholar Rick Heede attended a workshop in Cape Town, South Africa on indicators of sustainable energy development. The conference was organized by the French group Helio International, which monitors progress towards global energy sustainability. Rick, who was an advisor to participants, is on Helio's Scientific and Technical Advisory Committee. The goal was to fine-tune eight universally applicable indicators of progress toward energy sustainability, and to assemble a network of reporters/observers in most countries around the world. What's an indicator? Examples include a country's emissions of carbon dioxide or its net energy imports.

### WATER

## RAINWATER REDUX

### *Stormwater Management in Pittsburgh and L.A.*

When last we left our heroes, RMI's Richard Pinkham and Green Development Services had just completed a charrette on stormwater management in Pittsburgh. (See the winter 1998 Newsletter. For a definition of the term "charrette," see page 6.) Their goal was to help find innovative solutions to rainwater runoff for the Nine-Mile Run Watershed, an area that includes three towns and a portion of Pittsburgh.

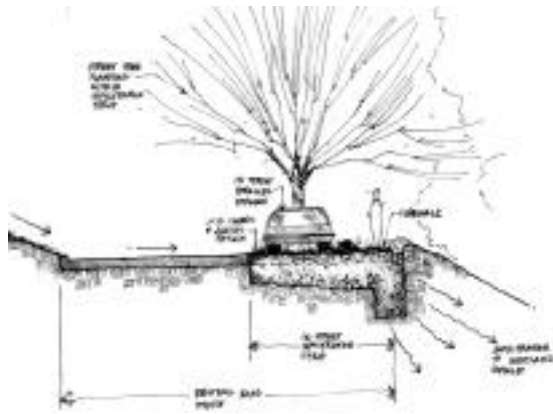
Pinkham and local partners at the STUDIO for Creative Inquiry (which always capitalizes "studio") are now in the final stages of finishing a 30-page report on the charrette, chock full of photos, architectural drawings, and text on innovative solutions. It will be distributed to participants, public officials, and local activists.

Even before the report's release, more than just rainwater started moving in

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Pittsburgh. Tim Collins, who works with the STUDIO and is co-director of the Nine-Mile Run Greenway project, says that the Hosanna House—the community center in Wilkinsburg where the charrette was held—has contacted him. Owners want to install a demonstration porous parking lot with a bermed storage area for rainwater detention. In addition, the county redevelopment agency called the STUDIO about an old shopping center atop



*Street pavement reduction and permeable parking bays for rainwater infiltration and neighborhood beautification in Pittsburgh.*

the watershed that's slated for redevelopment. The agency sees it as a perfect opportunity to apply innovative techniques—many uncovered at the charrette—for allowing rainwater to infiltrate onsite, soaking in like a sponge, rather than running off expanses of asphalt.

The actions of such “early adopters” only add momentum to the charrette policy team's efforts to develop an implementation plan. The group sent a letter to the Southwest Regional Office of the Pennsylvania Department of Environmental Protection, and later presented ideas at a meeting. Though no partnership exists, the officials were open to discussion.

One of the questions raised by the policy group was how to get private property owners to participate in innovative stormwater management programs. Though answers are still forthcoming, a Los Angeles Group actually began addressing that issue in a separate charrette held before the Pittsburgh event.

In 1997, T.R.E.E.S. (Trans-Agency Resource for Environmental and Economic Sustainability—a project of the environmental group TreePeople, which, incidentally, Hunter Lovins cofounded in 1973) held a charrette with stakeholders in Los Angeles. The goal was ambitious: to design a retrofit of L.A. so that the city could be managed as a watershed. In addition to producing an implementation plan and a book of “best management practices,” the group created a demonstration house. They considered single-family homes to be an important part of the solution to runoff problems, since more land is covered by such homes than any other type of development in the L.A. basin.

From the outside, the house at 1828 West 50th Street in the Crenshaw district of L.A. looks like your average suburban home. But numerous innovative features have been designed in:

- Driveway runoff, which normally carries oil and dirt into the municipal sewer system, instead runs through a grate into a box filled with sand and crushed rocks. The aggregate retains and filters the runoff, then allows it to percolate slowly into the ground.

- Yards incorporate sunken gardens, which hold rainwater long enough for the soil to absorb it. Roofs drain into six-inch depressions in the lawns; these “mini-retention structures” can handle the runoff from flash floods.
- Swales—concavities in the landscaping larger than those described above—filled with vegetation and mulch are designed to slow the flow of rainwater and filter pollutants. Water trapped in the vegetation is absorbed into the earth, where pollutants are slowly detoxified.
- Cisterns capture rainwater from the roof for irrigation in the dry season and flood control during heavy storms. The cisterns are made of polypropylene mined from L.A.'s waste stream. They could even be electronically dispatched as a dispersed “networked reservoir.”

T.R.E.E.S. couldn't have picked a better test case for its ideas. If L.A. can do it, any city can. And with all the good ideas generated in L.A. and Pittsburgh, it's hard to understand why we use sewer systems for runoff in the first place, especially when that water is valuable. It's a little like throwing out the baby with the rainwater.

*For more information on the Pittsburgh charrette, see <http://slaggarden.cfa.cmu.edu>. For the T.R.E.E.S. project, go to [www.treepeople.org/trees/](http://www.treepeople.org/trees/).*

—AUDEN SCHENDLER

## STATE OF THE CART

A “charrette” is an intensive, multi-disciplinary roundtable design workshop. One of the best definitions comes from the 1996 book *Sustainable Urban Landscapes: The Surry Design Charrette*, edited by Patrick Condon: “A charrette is a design activity where the participants are assigned a very complicated design project and are expected to bring it as close to completion as possible within a very short time. Members of the School of Architecture at the École des Beaux-Arts in Paris coined the word at the end of the 19<sup>th</sup> century. The faculty in that school would

issue problems that were so difficult, few students could complete them. When the allotted time had elapsed, a pushcart, or, in French, a charrette, trundled past the drafting stations. Students would throw their drawings into the cart in various states of completion, as to miss it meant an automatic grade of zero.”

RMI has applied the powerfully creative charrette technique to designing anything from buildings to cars, chemical plants to chip fabs, and urban hydrology to the greening of the White House.

## GREEN DEVELOPMENT

## LIKE, SHERMAN OAKS GOES GREEN

*The Rebirth of a Silicon Valley Mall*

In its heyday, the Sherman Oaks Galleria helped spawn the Valley Girl movement. Right off highway 101 and a short drive from downtown L.A., the million-square-foot shopping center was glitzy, novel, and a major destination for teeny-boppers and hard-core shoppers. But while the mall was “totally tubular” in the eighties, the ravages of time have brought disrepair and declining popularity. When considering the Galleria, more and more would-be customers and tenants started saying, “Gag me with a spoon.”

Realizing that a complete remodel was in order, green developer Dan Emmett decided he might as well make it sustainable and energy-efficient too. Since he already knew Amory Lovins, it wasn't a big step to call in Rocky Mountain Institute.

*“...Systems thinkers have to ask why the mall became ‘uncool’ so fast.”*

On 7–9 December 1998, RMI's Green Development Services led a design charrette (see box, p. 6) to make Sherman Oaks a cutting-edge, environmentally responsible shopping center and office complex.

The charrette featured a cast of 26 energy allstars with wide-ranging expertise: stormwater management, materials selection, mechanical engineering, glazing, lighting, daylighting, and lighting design. RMI participants included Bill Browning, Alexis Karolides, and Amory Lovins.

The team worked with architects and staff building committee members, giving training seminars and participating in breakout sessions to develop specific design guidelines for the remodel. Their goal: to

use a whole-systems approach to create improved economic, energy, and environmental performance. It's more than a developer's doing the right thing: buildings that are comfortable and cheap to operate are easier to lease. And since the developer is already targeting big-name clients, it makes sense to have every edge over the competition.

Despite the high-powered team, it's surprising how “low-tech” and straightforward many of the proposed measures were. For example, daylighting expert Greg Franta pointed out that the ceiling was rough, gray, and providing 30 percent reflectivity vs. the 70–80 percent that's readily available. Lighting engineer Nancy Clanton noted that automatic lighting controls work well in some kinds of areas, but not in others.

Moreover, people need different amounts of light based on age and personal preference, so task lighting and manual controls are preferable to fancier solutions. Another suggestion was to minimize furniture close to the windows to increase brightness and create a thermal buffer zone.

That's not to say technology doesn't have its place. Daylighting suggestions included using superwindows, tuned to the climate and orientation, to maximize light and minimize overheating. And since the number-one reason tenants relocate is problems with heating, ventilation and air conditioning (HVAC) systems, which also use a high percentage of a building's energy, the latest technology is often the best bet. But some-

times just having windows that work can make a difference. In the Sherman Oaks Galleria, many windows couldn't open—a classic “all glass and no windows” building. Fortunately, participants were armed with case-studies to show what is possible: the ING Bank, for example, has operable windows throughout 1.5 million square feet of office space.

Some participants suggested that if everyone's efficiency suggestions were combined, including measures like efficient lighting, office equipment, and ventilation, cooling loads would drop by 60–75 percent, with \$600,000 in up-front savings from smaller air conditioning systems. Cooling energy could drop by 90 percent with an energy-efficient system. In fact, Singaporean wizard Eng Lock Lee later emailed a clever way to get rid of refrigerative air-conditioning altogether. On the hottest days, when cooling towers alone wouldn't produce enough cooling, evaporating water into the hot, dry exhaust air leaving the building would cool it so much that a no-moving-parts heat pipe could passively use that cooling to chill fresh air as it entered the building.

Most of the charrette was funded by the Los Angeles Department of Water and Power, which has a major stake in retaining the Galleria when customers get to choose suppliers. The Sherman Oaks remodel is also an opportunity for the utility to sponsor a high-profile energy-efficiency project—no small prize in a state where competing utilities have long been on the cutting edge of demand-side management and where iconic projects can help to shift what designers offer and clients demand.

Still, systems thinkers have to ask why the mall became “uncool” so fast. After all, the Galleria was built in the early eighties and wouldn't have needed rebuilding if it had stayed popular. Part of the problem is that malls are like Las Vegas casinos—hip only until the next one comes along. Addressing that problem—how to avoid sprawl and growth instead of development—is the realm of Economic Renewal. (See “Escaping Sprawl,” p. 11.) Hmm... things really are interconnected...

—AUDEN SCHENDLER

## RMI NEWS

## NEW YORK, DAVOS, DETROIT, SNOWMASS

*Around the World with Amory and Hunter*

In 1947, the anthropologist Thor Heyerdahl sailed 4,300 miles from Peru to Polynesia in a balsawood boat. Amory and Hunter Lovins can empathize: they travel a lot too, though their ride is usually more comfortable. But there's another similarity: after next May, the Lovinses will join Heyerdahl as recipients of the prestigious Lindbergh Award.

The award is just one reason 1999 is an exciting year for RMI. Beyond the release of the book *Natural Capitalism*, now slated for the fall, there are numerous major events—some timed for the turn of the millennium—at which RMI will be represented. Below are some highlights:

**THE LINDBERGH AWARD**

Since 1978, the Lindbergh Foundation has presented an annual award to a person or team that has “significantly contributed to a better balance between the advance of technology and the preservation of the environment.” Recipients run the gamut from explorers (Sir Edmund Hillary, Neil Armstrong) to philanthropists (the Queen of Thailand) to scientists and visionaries (Drs. Murray Gell-Mann and Arthur C. Clarke). If even a few of the past recipients attend this year's ceremony, it might look more like an RMI cocktail party: many awardees are friends of the Institute. These include John and Nancy Todd, who invented the Living Machine™, an innovative approach to sewage treatment; Maurice Strong, special advisor to the Secretary-General of the U.N. and chairman of The Earth Council; and Dr. Paul MacCready, the engineer who built such pioneering vehicles as the *Gossamer Albatross*, a human-powered airplane that crossed the English Channel. The ceremony will be at the Explorers Club in New York on 19 May, as close as feasible to the day Lindbergh flew from New York to Paris in 1927.

**WORLD ECONOMIC FORUM**

Each year, the World Economic Forum meets in Davos, Switzerland, bringing together roughly 2000 business, political, academic, and media leaders. The Forum is considered the world's global business summit. This year, between 28 January and 2 February, Amory and Hunter gave four presentations on Natural Capitalism.

The theme of the meeting was *Responsible Globality: Managing the Impact of Globalization*. Other speakers included Switzerland's first woman president, Ruth Dreifuss; Nelson Mandela, President of South Africa; Kofi Annan, Secretary-General of the United Nations; Vice President Al Gore; and Gerhard Schröder, Chancellor of Germany.

The World Economic Forum, an independent nonprofit foundation established in 1971, calls itself “the foremost international membership organization integrating leaders from business, government and academia into a partnership committed to improving the state of the world.”

**NATIONAL TOWN MEETING FOR A SUSTAINABLE AMERICA**

Amory and Hunter will present the concept of Natural Capitalism at The National Town Meeting for a Sustainable America, 2–5 May 1999. Sponsored by the President's Council on Sustainable Development, the meeting may be the biggest thing to hit Detroit since Motown. Planners expect upwards of 3,000 government and community leaders, academics, activists, and students of sustainable development. Thousands more will participate via satellite and internet links from concurrent sessions throughout the country.

President Clinton created the President's Council on Sustainable Development in June 1993 as an advisory group. Its mis-

sion is to develop and implement innovative economic, environmental and social policies and to publicize and track the progress of sustainable development in the U.S.

**ST. GALLEN UNIVERSITY AND SCHUMACHER COLLEGE**

For ten days in late January, Amory Lovins was Oikos Visiting Professor at the University of St. Gallen business school in eastern Switzerland, teaching Natural Capitalism and advanced resource efficiency to business and technical audiences.

From 6 to 11 June, just before colleague Ernst von Weizsäcker arrives, Lovins will conduct another Natural Capitalism workshop geared towards business executives, at Schumacher College in Devon, England. The College, named after *Small is Beautiful* author E.F. Schumacher, is an international center for ecological studies. It was founded in 1991 “upon the twin convictions that the world-view which has dominated Western civilization has serious limitations, and that a new vision is needed for human society, its values, and its relationship to the earth.” Spaces, and scholarships, may still be available at the seminar. Tel: 011 44 1803 865 934; Fax: 011 44 1803 866 899; schumcoll@gn.apc.org.

*Ideas Travel Too*

Many years ago, on a rare visit by a Westerner to notoriously isolated North Korea, Dr. Peter Hayes of the Nautilus Institute met with a senior energy engineer in the capital Pyongyang. Peter was describing the potential benefits of providing electricity with small-scale, renewable power generation and efficient end-use. “Do you understand what I'm trying to say?” he asked. The official nodded and replied: “Amory Lovins—‘Soft Energy Path!’” And when RMI Director Michael Edesess turned on his T.V. in a Bangalore hotel some months ago, he saw Bill Browning talking about green development.



## NO JOKE: RADIO!

### *RMI Hits the Airwaves*

Ahhhh, Saturday morning at last. *The New York Times*, a cup of coffee, maybe a little National Public Radio. Right after Weekend Edition, someone's reading an essay about parachuting cats into Borneo. Wait a minute—that's RMI on the radio!

Buckle your seatbelts: Rocky Mountain Institute's gone audio. Since 1 March, RMI-sponsored "ECO-Essays" have been broadcasting on public radio stations nationwide. The three-minute spots are the brainchild of Peter Johnson, an executive producer and former host of WGBH in Boston, and James Taylor of "Money Talks," a finance show reaching 552 stations worldwide. The two founded ECO-Essays as a nonprofit group to inspire positive change through increased environmental awareness and responsibility.

Johnson is a staunch environmentalist and longtime admirer of RMI's work. He met with the Institute's marketing director and publicist Norm Clasen while the idea for ECO-Essays was still incubating.

Johnson was hoping RMI would be one of a number of organizations and individuals that could contribute. Says Clasen: "Initially, I just wanted to submit content. But then I thought, why not do it all?" Clasen began to look for ways RMI could write about half of the essays.

At first, it didn't seem realistic that the program could get rolling by spring, since the project needed funding, and foundation money is often slow in arriving. But quick action from the ARIA Foundation, which offered to underwrite the first quarter, made ECO-Essays possible.

Johnson hopes to reach 100 stations by late 1999, and upwards of 250 in two years, meaning roughly half a million listeners per day. National Public Radio reaches 50 states and Guam through 600 member stations.

As of 1 April, 50 U.S. stations had already committed to broadcast ECO-Essays, and Armed Forces Radio, with 400 stations worldwide, had picked up the program. Grandpa won't be left out either:

300 nursing homes in 20 states will broadcast the essays too.

"It's a tremendous opportunity to get RMI's message and name out there," says Clasen. "RMI and ECO-essays will release some 260 radio spots per year, with each one running twice a day. And each essay ends by acknowledging RMI."

It's ambitious to produce that many spots, but the truth is, RMI has hundreds of good stories to tell, and many aren't yet widely known. Whether it's the benefits of superwindows, the finer points of plugging leaks in a community's economy, or Antarctic ice cores as clues to climate change, RMI has stories everybody ought to know. Soon, more people will.

—AUDEN SCHENDLER

*Help spread the word! Please contact your local radio stations and encourage them to pick up this free series—for the good of the earth and of Rocky Mountain Institute. Though RMI will be writing many of the ECO-essays, submissions are welcome. For guidelines, email Peter Johnson at [Ecoessays@aol.com](mailto:Ecoessays@aol.com).*

## *Adopt-an-ECO-Essay*

Rocky Mountain Institute is seeking sponsors to help reach National Public Radio listeners nationwide. With a gift of \$1,500, you'll fully fund the writing and production of one ECO-Essay. A tagline acknowledging your support will be broadcast around the country: "ECO-Essays are brought to you by Rocky Mountain Institute in Snowmass, Colorado, [www.rmi.org](http://www.rmi.org), and by a grant from [your name here]." You'll also get a CD copy of the essay you sponsored. Your tax-deductible contribution will further RMI's mission and bring thought-provoking environmental success stories to new listeners every day. For more information, please contact Karl Clauss at (970) 927-3128, or [kclauss@rmi.org](mailto:kclauss@rmi.org).

—KARL CLAUSS

## I'M OK, YOU'RE Y2K

### *RMI's Local Meetings Foster Discussion*

"The only thing people can agree on with regard to Y2K," Cathy Moyer told community members in Glenwood Springs this December, "is that on 1 January 2000, something is going to happen." But nobody knows exactly what. Moyer, a co-founder of the Cassandra project—a Y2K (year 2000) preparedness group—was one of many speakers RMI brought to a local seminar series this winter.

The concern about the turn of the century is that computers—many of which use two-digit dates—may malfunction by misinterpreting the year '00 as 1900. ("Why Y2K?" fall 1998.) Unfortunately, that doesn't just mean you won't be able to play Nintendo. The problems could affect

everything from power to telecommunications to transportation.

To foster informed discussion and foresight, RMI led meetings in Aspen, Vail, Eagle, and Glenwood Springs, Colorado. "RMI isn't going to solve the Y2K problem for the Valley," says RMI's Hunter Lovins. "Our role is to invite citizens to create their own solutions. We recommend that we all become better neighbors, understand where we might be vulnerable, and begin now to craft locally appropriate solutions. Awareness and cooperation are our best tools. And even if there turns out never to have been a problem, this exercise will strengthen the community's resilience."

*(continued on next page)*

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The meetings—which attracted roughly 500 people—featured plenary speakers and panel discussions, followed by a question-and-answer session and a chance for community members to network. All three sessions were sponsored in part by Holy Cross Energy, RMI's local electric co-op.

Happily, the meetings have already had some impact. Beyond bringing together representatives from local electricity, water, communications, government, and public-safety groups, among others, the meetings have spawned community action. Shortly after the Glenwood session, the town of Newcastle formed the New Castle Family and Community Y2K Preparedness Group. At the end of the Vail meeting, a local reporter stood up and offered to start a preparedness group herself. Aspen is hiring a Y2K coordinator. And other organizations are ramping up their activity as well.

In the end, perhaps the most clear-headed piece of advice came from Pitkin county sheriff Bob Braudis (who recently joined a Y2K task force.) He closed his speech in Aspen by saying: "Stay cool and love one another." On New Year's Day at 8,000 feet in the Rockies, coolness, at least, won't be a problem.

—AUDEN SCHENDLER

## THE XEROX<sup>®</sup> OF AUTOMOBILES?

Hypercar<sup>™</sup> may be on its way to being a commonly-used trademarked word, like Xerox or Band-Aid. One automaker already used the term in a Superbowl commercial. Now, World Wide Words ([www.quinion.demon.co.uk/words/turnsofphrase](http://www.quinion.demon.co.uk/words/turnsofphrase)) has listed "Hypercar," among others like "intranet" and "apoptosis" (the process by which cells naturally self-destruct in the body), in its "Turns of Phrase" index. The index catalogs words likely to appear in 21<sup>st</sup> century dictionaries. Of course, we're working hard to make "Hypercar" more than just a household word. We want it to be a household *car*.

—M.B.

## TRANSPORTATION

# WHEN IS A HYBRID NOT A HYBRID?

## *A Report from the Detroit Auto Show*

Has Detroit finally seen the light? At the North American International Auto Show this January, automakers displayed at least a dozen "hybrid" vehicles. But don't get too excited. These "hybrids" aren't the ultralight hybrid-electric Hypercars RMI has been promoting since 1991. Instead, the automotive industry is using the term to

describe a hybrid drivesystem. While far from ultralight and efficient (a Hypercar with the same size and performance would use a quarter of the Citadel's 323 horsepower), its hybrid drivesystem shows that automakers are, in fact, "halfway to Hypercars." (See the spring 1998 newsletter.) You can see the Citadel at: [www.chrysler-cars.com/insite/dreams.htm](http://www.chrysler-cars.com/insite/dreams.htm).



*Hypercar researcher Michael Brylawski narrowly avoids a small child while testing a four-seat Toyota Prius at the Detroit Auto Show. This hybrid-electric sedan, launched in Japan in December 1997, will enter the U.S. market in 2000—after the lighter, lower-drag, hybrid-electric Honda VV, due out this fall.*

describe an emerging class of vehicles that combine features of both trucks and cars—providing the functionality and style of trucks with the ride, smaller size, and better efficiency of cars. The Subaru Forester is an early example.

So these "hybrids" have nothing to do with Hypercars, right? Not necessarily. "Hybrid-hybrids"—car-truck combos with hybrid-electric drives—are coming to showrooms early next decade. It's likely they'll increasingly be ultralight as well. The auto show provided a glimpse:

- Chrysler's Citadel show car, "part luxury sedan, part SUV, and part minivan," according to promoters, also employs a

structure, the P2000 would be a Hypercar.

In fact, make any of these "hybrid hybrids" ultralight and ultra-low-drag, and they're Hypercars, as is any vehicle that uses RMI's award-winning design-integration concept. The point is, Hypercars aren't little cars, they're anything that happens to fit the design principles. Eighteen-wheeler or subcompact, "hybrid" or a just plain car or truck, a Hypercar will not just outperform a conventionally designed vehicle, but will be much kinder to the environment and to your wallet.

—MICHAEL BRYLAWSKI

## ESCAPING SPRAWL

By Michael Kinsley, Co-founder of RMI's Economic Renewal Program

*My community is growing like crazy. I used to be able to take a .22 and go hunting out my back door. Now, that wilderness is all malls and subdivisions. But we need a strong economy. What can we do?*

—Douglas Hill, Austin, Texas



### DEAR ROCKY

the story of the unemployed town council member:

Ever the entrepreneur, he buys a truck and a load of vegetables to sell by the highway. After a terrific day, he's sold out. Back home, he gushes to his wife about his success.

"How much," she asks, "did you earn?"

"Eighteen hundred bucks," he crows.

"And how much did you pay for the veggies?"

Punching his calculator, he hesitantly announces, "Two thousand."

"Hmm," she says, "there seems to be a problem."

Dreamily, he says, "Yeah, I need a bigger truck."

He's intoxicated by cashflow. But veteran businesspeople know that what counts is profit. Increasing cashflow is fine, until it's outweighed by increasing costs.

Ironically, the same smart businesspeople often neglect to calculate their own net gain when promoting economic development. They seek to spin the economy as fast as possible—harvesting more corn or trees, making more widgets, attracting

more tourists. These are ways to increase throughput, the rate at which goods and services flow through an economy. But throughput has nothing to do with community size or quality of life. Subtle and often misunderstood, throughput is the invisible 800-pound gorilla of the growth debate.

That debate should focus on whether increased throughput provides a net gain—that is, does it increase the well-being of citizens? And does continuously increasing throughput leave a viable economy for our children, or is it an illusion that, like selling lots of veggies, feels good in the short term but hurts later on? These are not simple questions. But answers can be found by soberly comparing the economic, community, and environmental costs and benefits of specific growth proposals.

Unfortunately, these factors are seldom considered. Intoxicated by throughput, growth boosters ignore such costs as depleted soils or forests, groundwater pollution from chemicals substituted for healthy soils, traffic congestion, and housing that residents of tourist towns can no longer afford. In a mature economy, each extra bushel, tree, or tourist can create a net loss that boosters assume will be made up in volume.

The nationwide movement called "smart growth" offers a valuable context for discussing this issue. But watch out: many unsustainable developments are dubbed "smart" in an attempt to green-wash projects that do not fit.

In contrast, genuinely smart communities are using five strategies to respond to growth. First, they're using various means to limit growth to what's wanted. Second, they're ensuring that growth pays its way. Third, where real-estate prices are soaring, they're building affordable housing to maintain community. Fourth, they're planning mixed uses of land so that resi-

dents can live, shop, and work in close proximity. Fifth, they're pursuing sustainable economic development.

Communities develop more sustainably when they seek ways to create jobs, income, and savings by doing more and better with what they already have: this is what we mean by *development* instead of *growth*. And they do it in dozens of ways. They refine products already harvested, add value locally instead of exporting cheap commodities, use energy and water more efficiently so that money stays in the community, match local businesses with local suppliers, and revitalize their downtowns. Instead of wooing more tourists, they entice tourists to stay longer. They turn wastes into feedstock (one town made floor mats from old tires), foster community-supported agriculture, and secure local ownership of businesses.

Students in the high-school entrepreneur class in Tropic, Utah, for example, found a way to replace imports with local products. They noticed that tourists were buying bottled water. Knowing that local well-water tasted terrific, they bottled it, created their own label, and sold it to the visitors.

In these smart communities, the economy grows, the environment stays healthy, and the town remains a place where its residents want to live. And nobody needs a bigger truck.

*For more information on smart growth, refer to Economic Renewal and Green Development on RMI's website, [www.rmi.org](http://www.rmi.org).*

*Other useful websites:*

- *American Planning Association*  
[www.planning.org](http://www.planning.org)
- *Center for Livable Communities*  
[www.lgc.org/clc](http://www.lgc.org/clc)
- *Sprawl Watch Clearinghouse*  
[www.sprawlwatch.org](http://www.sprawlwatch.org)
- *Congress for the New Urbanism*  
[www.cnu.org](http://www.cnu.org)

RMI NEWS

## CARRIER HEATS RMI

On cold winter days, it wasn't rare to see RMI researchers wearing hats and gloves indoors. That's because for years, the Institute's Windstar annex—where most of our researchers work—has been heated by an antique wood-fired boiler. Sure, wood is renewable, but the converted 1950s farmhouse, solar-tempered in the 1970s but never superinsulated, was notoriously hot-and-cold. (On average, optimists would say, it was the perfect temperature.)

Now, thanks to a major donation by Carrier Corporation, Windstar will be heated by state-of-the-art 95-percent-efficient bottled-gas boilers. Carrier also donated

units to heat nearby staff housing. RMI is grateful for this gift, which improves quality of life and perhaps RMI's work—researchers don't type so well wearing gloves.

## NEW PUBLICATIONS

**“A Strategy for the Hydrogen Transition”** (T99-7). \$8.00 plus shipping & handling. (See page 5)

**“The Market's Good News on Climate”** (E98-6). Amory Lovins's letter to *Worldwatch Magazine* on business initiatives to reduce greenhouse gas emissions. \$1.00 plus shipping & handling.

Our publisher, Little Brown, tells us *Natural Capitalism* will be a fall book. A summary article will be featured in the May/June *Harvard Business Review*. Look for details in the next newsletter.

## New Staff



Norm Clasen

*Development Writer/Researcher Mark Scott, Green Development Senior Research Associate Huston Eubank, Development Associate Karl Clauss, Outreach Intern Jenny Constable, and Hunter's Executive Assistant Dan Bakal. And a fond farewell to Richard Pinkham and Auden Schendler.*

## WALKING OUR TALK

RMI has never been entirely powered by renewables, but we're getting there. The Institute signed up for 33 hundred-kilowatt-hour blocks of windpower from Holy Cross Energy's Windpower Pioneers program at an added cost of \$2.50 per block per month. The renewable power won't come on line until Holy Cross, our local co-op, finishes installing wind turbines in Northeastern Colorado, but then it will cover a third of the power consumed at the headquarters building. Already, a third—soon a half—of the building's power comes

from photovoltaics. RMI has also installed solar panels at Windstar to provide backup power to the computer network. Robert Warren, who installed the system, calls it the only solar-powered computer network backup system in the world. Robert should know—he gets around. Right now he's working in Hong Kong, designing a mobile PV system for disaster relief.

## RMI CATALOG

RMI's fully redesigned 1999 Publications Catalog is now available. Call, fax, or email us for a free copy, or go to [www.rmi.org](http://www.rmi.org).

## The Newsletter

The *Rocky Mountain Institute Newsletter* is published three times a year and distributed to more than 22,000 readers in the U.S. and throughout the world.

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Although space constraints prevent us from printing letters to the editor, we want to hear your comments, criticism, or praise relating to any article printed in the *Newsletter*. Please address all correspondence to:

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## About the Institute

Rocky Mountain Institute is an independent, nonpartisan, nonprofit research and educational foundation with a vision across boundaries.

Seeking ideas that transcend ideology, and harnessing the problem-solving power of free-market economics, our goal is to foster the efficient and sustainable use of resources as a path to global security.

Rocky Mountain Institute believes that people can solve complex problems through collective action and their own common sense, and that understanding interconnections between resource issues can often solve many problems at once.

Founded in 1982, Rocky Mountain Institute is a §501(c)(3) /509(a)(1) public charity (tax-exempt #74-2244146). It has a staff of approximately 45 full-time, 48 total. The Institute focuses its work in eight main areas—corporate practices, community economic development, energy, real-estate development, security, climate, transportation, and water—and carries on international outreach and technical-exchange programs. Its E SOURCE subsidiary (4755 Walnut St., Boulder, CO 80301, 1-800-E SOURCE, [esource@esource.com](mailto:esource@esource.com), [www.esource.com](http://www.esource.com)) is the leading source of information on advanced techniques for electric efficiency.

## INVESTING IN RMI'S FUTURE

Dear Friends,

Most families would find it hard to pay the monthly bills if they'd had to pay cash for their house because no mortgage was available. Despite excellent credit ratings and a perfect payment history, RMI, like many nonprofits, is familiar with this bind, because nonprofits can't get household mortgages—only short-term, expensive commercial loans. For example, to expand staff housing in 1997, RMI had to pay \$200,000 cash and get a costly three-year bank loan twice that large. A similar bite out of operating cashflow recurs whenever RMI renovates a building, upgrades phones and computers, or makes any other long-term investment that can't be capitalized long-term.

That's why, since 1986, RMI has relied mainly on friends to finance its long-term capital needs. Newsletter readers who can't make a large gift but do have some capital to invest have made more than 40 unsecured private loans that form the Institute's capital backbone. Most of this \$1.077 million of affordable loans are for \$10,000–50,000 over periods of 5–20 years. Interest yields can at least match CDs, but lenders also earn the satisfaction of seeing their investment build RMI's effectiveness.

Rocky Mountain Institute's capital needs have lately grown three-fifths as fast as its revenues. To keep pace, we're now welcoming a new, \$2-million round of private investment from individuals and foundations. It's for physical-plant improvements, long-term refinancing of short-term and high-rate debt (chiefly for the enlarged staff housing), and recollateralizing a \$500,000 safety-net line of credit that provides protection against late receivables. A third of these opportunities are already spoken for. When completed, they'll save RMI some \$50,000 a year in interest costs, reduce debt service from 6.5 percent (1997) to less than 5 percent of revenue, sensibly align maturities with asset lives, and prudently strengthen the Institute's operating reserves.

RMI's income statement is steadily gaining strength—1998 brought the fourth consecutive operating surplus, the 11<sup>th</sup> in 17 years—and we now want to strengthen the capital structure correspondingly. To explore this opportunity to align your investment objectives with the Institute's goals, please contact Comptroller Christy Otis at 970/927-3128, fax 970/927-4178, or [account@rmi.org](mailto:account@rmi.org). Thank you.

L. Hunter Lovins, President

Amory B. Lovins, Senior VP and Treasurer

## INSTITUTE SUPPORTERS

Our sincere appreciation is offered to these friends who have contributed to RMI.

Please let us know if your name has been omitted or misspelled so it can be corrected in the next issue.

Donations received between 1 September and 31 December 1998 are listed. Numbers in parentheses indicate multiple donations.

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