

Solar farming
Advancements in agricultural technology

Home performance
How does your living space stack up?

Energy savings
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MEDIA PLANET

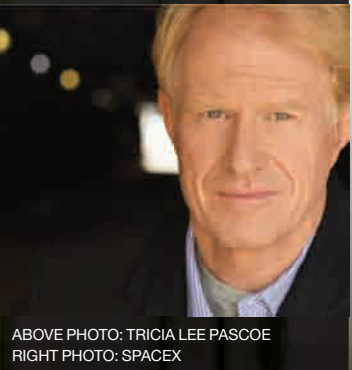
June 2012

GREEN INNOVATIONS

3
SOLUTIONS
FOR A GREENER TOMORROW

Elon Musk
Creates dynamic technologies in the golden state

Ed Begley Jr.
Talks green living; past present and future



FROM LAND TO SEA TO SPACE

California welcomes a future of sustainability

ABOVE PHOTO: TRICIA LEE PASCOE
RIGHT PHOTO: SPACEX



PHOTO: VINCE STAMEN

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thankyouocean.org

INSPIRATION

Earth Day 2012 has since passed, but creating a **powerful future** is an everyday family affair.

Ed Begley, Jr. on living sustainably and loving passionately

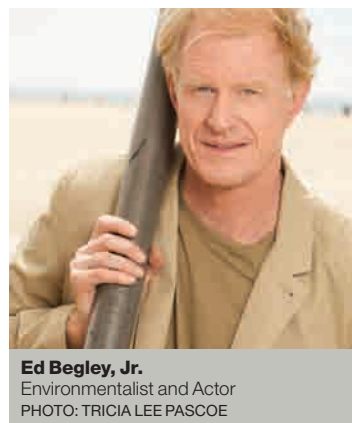
On April 22nd, 1970, Ed Begley, Jr., a struggling young actor, got together with a group of friends at Los Angeles Valley College in Van Nuys, California to celebrate the very first “Earth Day”. Begley does not remember what the banners said, but he vividly remembers the stultifying low-hanging smog and his immediate sense of commitment to this cause. “I grew up in Los Angeles in the 1950s and ‘60s and remember living with that smog, seeing all the pollution in the Santa Monica Bay—and then hearing about the Cuyahoga River catching on fire in 1969. I was ready to do something,” Begley says.

Just six days after Begley joined other Earth Day participants in a quest to challenge the environmental status quo, his life changed forever when his father, the Academy Award-winning actor, Ed Begley, Sr., died suddenly of a heart attack. Begley says, “My father, a child of the Depression, was a conservation-

ist, who liked to save. He got me involved in Boy Scouts and showed me nature, and I loved it. The decisions I made at that point—becoming a vegetarian, committing to recycling and composting, and getting my first electric car, a Taylor-Dunn golf-cart style vehicle with an 8-mile range—were to honor him. I didn’t want to just celebrate on that one day. I wanted to live it, like my father did, 365 days.”

Fast forward to the 20th anniversary of Earth Day, April 1990: That’s when Begley says he decided to “redouble his efforts.” He started running his home with solar power and had his 1973 Subaru converted to a solar-powered electric car.” And at a point when Begley’s career was flourishing, he started using public transportation and biking on a regular basis.

During the 42 years that Begley has been committed to environmentalism, there has been progress. His current electric car is a 2003 Toyota RAV-4 EV that has an 80-mile range and can go up to 80 MPH. He has a composting toilet, which in contrast to popular



Ed Begley, Jr.
Environmentalist and Actor
PHOTO: TRICIA LEE PASCOE

“My wife won’t ride on my handlebars to the Oscars, so we take the electric car.”

belief, has no odor and only has to be cleaned twice a year. Soon, his family will move to their new 3,400-square-foot, solar-powered house, with 10,000 watts of solar

power and a 10,000-gallon rain-water tank to make it easy to capture and reuse water. He sees environmentalism advancing rapidly in the next 10 years, with “the smart grid getting smarter” and a growing commitment to using water more efficiently.

“I think that living sustainably creates a legacy,” Begley says. Begley has built a significant legacy through his very public commitment to green living, most notably in his show “Living With Ed” on the Planet Green channel. He stars in the show with his wife, Rachele, and though she sometimes chafes as Begley makes good on his commitment to have a very low carbon footprint, the chemistry and love is obvious. He says, “My wife won’t ride on my handlebars to the Oscars, so we take the electric car. The important things are family and friends. Make time for them. Simplify your life. Go for a hike or to a museum. These are the things that make us wealthy.”

NICOLE GRAY

editorial@mediaplanet.com



WE RECOMMEND



Jessica Jacobs
Composting:
Getting rid of the ick factor

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MEDIA PLANET

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Publishers: Anthony Shepard, Caitlin Curtis, Zach Urbina
Business Developer: Cahill Puiil cahill.puiil@mediaplanet.com
Managing Director: Cahill Puiil cahill.puiil@mediaplanet.com
Designer: Beth Gotham

Contributors: Bill Elwell, Danny Kennedy, Joey Jimeno, Nicole Gray, Ed Begley Jr, Jessica Jacobs, Dana Rohrabacher, Avery Hurt, Jordan Goodson, Tricia Lee Pascoe, Vince Stamey

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NEWS

Elon Musk: the quintessential California entrepreneur

Founder of Tesla Motors and SpaceX, Elon Musk brings a fresh perspective on business to California industry.



Elon Musk
Founder,
Tesla Motors
and SpaceX
Technologies

In the ten years since selling PayPal to eBay, entrepreneur Elon Musk spent a vast amount of his personal fortune to usher in a brighter future. In addition to creating the most ecologically friendly high performance car on the road, Musk has reinvigorated the US space industry with his company, Space Exploration Technologies (SpaceX).

In May, the SpaceX Dragon spacecraft became the first private vehicle to berth with the

orbiting International Space Station, enhancing the possibility of becoming an astronaut for more than just engineers and scientists. A brighter future, indeed.

Throughout his endeavors, Musk has proven himself to be a committed man who seeks accomplishment at all costs. Though originally born in South Africa, Musk is spreading the Californian standard of ensuring the sustainability of our envi-

ronment and the leading edge of innovative technology.

“SpaceX wasn’t willing to wait the long lead times, and pay the high costs they were being quoted by aerospace suppliers around the country for many of their components. Instead they “insourced” everything they could, the California way,” reports Congressman Dana Rohrabacher, “California does things differently, and is opening up possibilities for new entrants, and new ways of business.”

Elon’s commitment to innovation also intends to transform another flagging American industry, car manufacturing.

Car culture remains deeply

ingrained in our state culture, with the vast majority of cars on the road burning traditional gasoline. Tesla Motors, also founded by Musk, provides a solution to this problem by releasing an affordable and exclusively electric car, the Model S. Not only is this car eco-friendly, with its sleek body style, eight airbags, long-range capabilities, and easy to finance price tag (\$50,000); this car is uniquely Californian.

California may not be the greenest state in the union, but it’s certainly trying to be. Under the guidance of Elon Musk, it may well succeed.

JORDAN GOODSON
editorial@mediaplanet.com

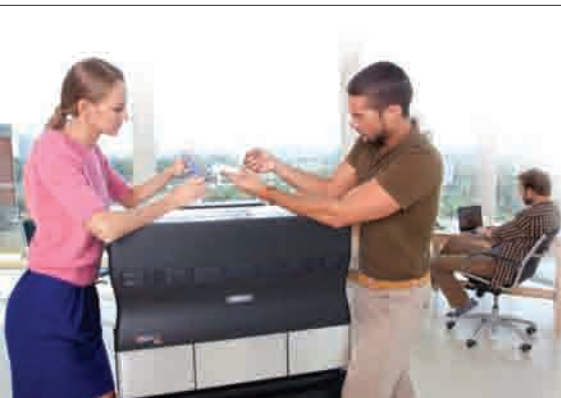


NEWS IN BRIEF



PHOTO: KYLE COTHERN

■ New technologies, like 3D printing, allow for rapid prototyping and a substantial reduction in development costs for manufacturing companies in aerospace and mechanical engineering. “It’s one thing to look at the screen. It’s another thing entirely to hold something in your hand,” says Ryan Hayford, of Objet, Ltd.



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INSIGHT

Before giving your home an energy makeover, do your homework: A little learning can save money and prevent mistakes



Question: What should I buy to make my house more energy efficient?

Answer: Nothing – yet. First learn what your house needs.

A few tweaks in and around your house can save you serious money and at the same time help conserve energy and reduce global warming. Don't, however, rush out and load up on green windows, weather stripping, and Energy Star appliances before you've done your homework.

What your nest needs may not be what the house next door needs. If you plan your

upgrades based on advertisements and advice from friends, neighbors, and web sites, you may replace things that don't need replacing and overlook some things that do.

First things first

A careful, room by room, inside and out evaluation of how much energy your house is using (and losing) is an essential first step in any program to reduce your home's energy footprint.

Some things you can do easily yourself: Check for air leaks in all windows and doors and around electrical outlets; make sure you have replaced

“The furnace, most large appliances, attic vents and fans, and foundations are all best left to the pros.”

all incandescent light bulbs with compact fluorescents. But many items will need evaluation by a professional. The furnace, most large appliances, attic vents and fans, and foundations are all best left to the pros. Professional energy auditors have equipment and experience not only to find things you may have missed, but to determine the impact and cost-effectiveness of any changes you have in mind. And sometimes they can bring you some unexpected good news.

Expect results

An energy audit might reveal that your house is leaking

energy from places you didn't even know it had. On the other hand, you might also find that your windows are tighter than you thought, but your doors are leaking. Or that changing the settings on your refrigerator is all you need to make it as efficient as a newer model.

Whether you do some of it yourself or let a professional take over the job, a thorough energy audit before you start upgrades can make the difference between saving money (and energy) and wasting it.

EVERY HURT

editorial@mediaplanet.com



Services that will help you save energy and green products that extend the life of your home.

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NEWS

A local farmer uses sunshine for more than growing crops

SUSTAINABLE AGRICULTURE THROUGH SOLAR ENERGY

Question: What does solar power offer to a farmer?

Answer: Bottomless savings and bragging rights, too.

It takes sunshine to grow plants. No surprise there. But on a farm, more than just plants need energy.

Stewart and Jasper Orchards, a family owned farm in the central part of the San Joaquin Valley, added solar power in the summer of 2010. Their reasons were no doubt many and noble, but not least among them was the simple fact that solar made financial sense. “At the current rate, we will have the solar technology system fully paid in six years, and then we will begin to generate a savings of approximately \$250,000 a year,” says Jim

Jasper, owner.

The conversion process was easier than expected. “The actual construction of the one megawatt ground mount solar tracking system took around six weeks,” says Jasper, “Another four months was spent getting the paperwork through the county bureaucracy — that actually took longer than installing the technology.”

Stewart and Jasper Orchards, which grows mainly almonds, but also walnuts, cherries, and citrus, uses the solar system primarily for a hulling and shelling facility on the farm. Though the solar technology doesn’t directly impact the growth of the crops, it does affect business beyond a reduction in power usage by helping the environment. “The buyers of our almonds frequently

visit our facilities and we always show them our solar panels — we are so proud of using renewable energy,” says Jasper.

Stewart and Jasper has been in business for almost 65 years. Jim Jasper is a second generation farmer and his son Jason is now working for the company as well. They plan to continue farming for generations to come. When asked if he had any advice for other farmers or the public regarding solar energy, Jasper said, “Solar energy makes a lot of sense if it can be affordable. It was affordable for Stewart and Jasper because 70 percent of it was subsidized.” Solar energy is a promising way to make farming affordable and sustainable.

EVERY HURT

editorial@mediaplanet.com



TECHNOLOGY UPDATE

The solar tracker



PHOTO: SPG SOLAR

What is a solar tracker?

An automated tracking system that aligns the solar panels with the sun throughout the day, which increases the energy output of the solar panels. In contrast, a fixed tilt system keeps the panels fixed in one position.

How does this product help the farm community?

Our tracking system generates up to 25 percent more energy and requires less land for the energy produced, which improves returns for farmers. By generating more energy per acre, it has a

direct bottom line effect on your operating costs.

Are solar trackers more expensive than fixed tilt systems?

For a one megawatt system, our solar trackers actually create an additional net savings of roughly \$400,000 over 20 years.

Are solar trackers difficult to maintain?

Not at all. They are easily installed, run quietly and require minimal maintenance. In fact our company maintains the system for the first 10 years at no cost to the farmer.

BILL ELWELL, DIRECTOR, COMMERCIAL & UTILITY PRODUCTS, SPG SOLAR

editorial@mediaplanet.com

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INSIGHT



Question: How do we create the sustainable future?

Answer: It starts where we spend most of our time. Our homes.

A better and brighter tomorrow

Faced with volatile energy prices, homeowners are scrambling for more stable options. Many find private solar energy systems too expensive, bulky, and unreliable in poor weather. Skeptics further argue that the savings from these systems do little to offset the cost of installing and purchasing the equipment.

“There’s a lack of awareness of how people can save money and benefit from solar energy,” said Danny Kennedy, president and CEO of Sungevity, a solar com-

pany from Oakland.

Now, customers may go online to access price quotes, extensive plans on leasing systems, and wider support through social media. Expert, interactive consulting is also at hand to streamline the design and building stages. Local and federal tax credits through programs such as the California Solar Initiative further push families to make the switch.

Savings start from day one. Customers stay connected to their local power grid, a setup



“There’s a lack of awareness of how people can save money and benefit from solar energy”

Danny Kennedy
President and CEO, Sungevity

that returns excess solar energy to the utility company. In this case, customers can watch their

meter run backwards with due confidence—they are supplying their neighbors with clean

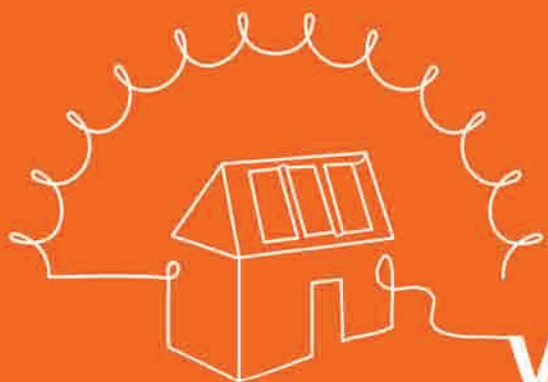
energy. While saving money proves a clear incentive, customers also benefit from a reduced carbon footprint—an aim all can welcome.

With the power to fire up appliances without the risk of driving up bills, solar energy is an investment in sustainable living.

“Going solar can be a part of how you can shine from the inside out,” said Kennedy.

JOEY JIMENO

editorial@mediaplanet.com



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INSPIRATION

One man's trash
is another mans..... trash.



Why composting matters so much—getting down to the nitty, gritty

Getting rid of the ick

From a design perspective, composting bins may not be elegant, but these polyethylene bins that look like upside-down garbage cans represent soil renewal, less waste, and hope for long-term sustainability and environmental integrity. Compost—the highly desirable byproduct of composting—is organic material that has been decomposed and recycled as fertilizer and soil conditioner. It is a good alternative to chemical fertilizers, because it adds nutrients to the soil and does not pollute groundwater.

Where does it go?

Beyond the benefits of composting for producing healthier plants and agricultural products, composting has profound implications for decreasing the activity that ultimately leads to global warming. For example, if you farm one acre of land conventionally for one year, you put 3,800 pounds of carbon into the atmosphere, but if you apply compost made from food scraps to that acre and farm it environmentally, you return 12,000 pounds of soil-enriching carbon to the soil.

San Francisco—considered the greenest city in North America—has been realizing the benefits of its robust composting efforts. Though composting is becoming more popular, nationwide less than 3% of food scraps are currently being composted, compared with 67% in San Francisco. Since it initiated its composting program in the mid-1990's, San Francisco has successfully kept 1.1 million tons of organic materials out of landfills—which is where everything ends up if it's not



Jessica Jacobs
Waste Management District Manager

“Think about what you buy and bring into your home”

recycled, reused or composted. Instead all of those leftover scraps of food and other compost-eligible material have been turned into compost that went to farms and vineyards.

So where to start? Jessica Jacobs, a Waste Management District Manager in Novato, California, says, “All types of food can be composted, including meat, bones, egg shells, coffee grinds and filter, along with fruits, vegetables, breads, and food-soiled paper products like pizza boxes, take-out containers and paper towels. Of course all yard trimmings and plant materials are also great for making high-quality compost. Think about what you buy and bring into your home. Is it made from simple, basic materials, such as paper or wood? Would it break-down in nature? Would you want to put it back in your yard... or vegetable garden? If so then it is probably a good item for composting.”

NICOLE GRAY

editorial@mediaplanet.com



QUESTION & ANSWER WITH JESSICA JACOBS

What types of things should we compost?

All food products can be composted, including meat, bones, egg shells, coffee grinds and filters along with fruits, vegetables, breads and food-soiled paper products like pizza boxes, take-out containers and paper towels. Of course all yard trimmings and plant materials are also great for making high-quality compost.

Equally important is what can't be processed. In order for a compost to be approved for use on organic farms, it can only be made from materials approved by the US Department of Agriculture National Organics Program (NOP). The only man-made material currently approved by NOP is paper products. Bio-plastics and compostable plastics

— the operative word is “plastics”—are not approved by NOP.

What are the benefits of composting?

Composting closes the loop on locally-generated food scraps and yard trimmings by converting these waste materials into valuable soil amendments. Compost not only adds basic nutrients such as carbon and nitrogen, but it is also full of hundreds of micronutrients and microbes which improve the health of both the plants and the soil. Compost also can replace chemical fertilizers which typically require significant energy to manufacture and which over time put the soil in an unnatural balance.

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CHALLENGES



BEST TIPS

Leave only your footprints – and not too many of those
Reduce your energy footprint when you travel

Before you leave

Pack light. More weight means more fuel. Take easy-to-laundry, quick-drying clothes, so you won't have to pack so many. Carry an e-reader instead of books and magazines.

Getting there

If you fly, try to get a non-stop flight. If you travel by car, make it an efficient one, even if you have to rent it. Trains can be both more efficient and less hassle. Cruise lines are aware of their impact on the destinations they visit and

often make an effort to respect local environments.

While you're there

Be a locavore while you're there—that's part of the fun of travel anyway. Walk, cycle, or use public transportation for sightseeing. If you stay in a hotel, ask housekeeping to come in only once a week. You can hang your towel to dry between showers, and there's no need for fresh sheets and vacuumed floors every day.

AVERY HURT

editorial@mediaplanet.com

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PHOTO: CLAIRE FACKLER

**Our most precious resource is in trouble.
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California's Thank You Ocean campaign

Giving back

"The ocean takes care of us, let's return the favor." The compelling call to action is the basis of California's Thank You Ocean Campaign, a nonprofit partnership originated and supported by the State of California and NOAA Office of National Marine Sanctuaries. Thank You Ocean campaign's mission is to raise awareness of the benefits the ocean provides to us and identify ways each of us can help protect it. The campaign is focused on educating the public about the importance of sustaining ocean life and inspiring Californians to practice ocean stewardship.

The ocean is a vital resource that provides food, water, commerce, recreation, medicine and even the air we breathe. Today, our ocean faces unprecedented threats from pollution, trash, declining fisheries and multiple impacts from climate change.

Education

Thank You Ocean messages are delivered via video, audio, print, news, podcasts, Facebook, twitter and the information-rich web

site. Campaign ads, created by The Hive Advertising of San Francisco, include clever presentation of ocean facts. (Did you know that sea slugs help fight the effects of Alzheimer's? That the ocean produces more oxygen than all the forests combined?)

The stunning public service announcement produced by world-renowned cinematographer, Bob Talbot, features breathtaking ocean shots of people thanking the ocean for recreation, food, jobs, medicine and more. Actor Edward James Olmos contributed radio and video public service announcements with a message of "Don't Trash the Beach."

Stay informed

Twice monthly podcasts produced by Jerry Kay of Earthnews Journal bring ocean stories to light, from marine mammal updates to ocean acidification and marine debris reports. Thankyouocean.org web site and many campaign elements are in Spanish and English, to reach a diverse audience.

Anyone can become part of Thank You Ocean by visiting the web site,

practicing everyday actions to protect the ocean found online, making an online donation, practicing everyday actions found online, "Liking" Thank You Ocean on Facebook, following on Twitter, or participating in a contest. Currently, Thank You Ocean, the California Coastal Commission and Fairmont Hotels present the 2012 California Ocean and Coastal Amateur Photography Contest through July 13. Enter at mycoastalphoto.com or view entries and vote for your favorite.

Thank You Ocean campaign is supported by the Ocean Communicators Alliance, a network of than 300 representatives of ocean-related organizations, businesses and agencies. California's Ocean Protection Council and the National Marine Sanctuary Foundation are active partners in Thank You Ocean. To find out more, visit thankyouocean.org. (cover photo by Vince Stamey, "The Guardian" Courtesy Thank You Ocean. Garibaldi photo by Claire Fackler, NOAA Office of National Marine Sanctuaries.)

**SARAH MARQUIS,
NOAA OFFICE OF NATIONAL
MARINE SANCTUARIES**

editorial@mediaplanet.com