

Focus

GREEN

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Orem firm poised to make **BIG BUCKS** converting GM vehicles to extended range electric pickups, vans, SUVs

By Andrew Haley
The Enterprise

With gas prices, driven by Mideast woes and a domestic refining bottleneck, climbing ever higher, and anxieties over climate change mounting, many Americans are taking a second look at electric cars and gas-electric hybrids. From Toyota's Prius to Nissan's Leaf, a new generation of electric and hybrid vehicles are sleek and svelte. It would seem the days of the gas-guzzling SUV are over, with consumers coming around to the idea of small, efficient cars fueled by anything other than gasoline, but Orem-based VIA Motors wants you to have your cake and eat it too.

Founded in 2010 by Kraig Higginson, Alan Perriton, Richard Clayton and David West, with the financial backing of billionaire real-estate mogul and venture capitalist Carl Berg, VIA

Motors is building a line of full-sized pickups, vans and SUVs that get upwards of 100 miles per gallon. Among these "extended range electric vehicles" or eREVs is the VTRUX, a modified Chevy Silverado that seats six and carries half a ton of cargo, with 402 horsepower and 300 foot-pound force of torque. The VTRUX, like all of VIA's eREVs, runs on a sophisticated hybrid gas-electric motor powered by a lithium-ion battery backed up by traditional combustion.

"This is an exciting time for us. We have gathered together a world-class team," said Perriton, VIA's president.

A New Zealand native who now resides in Utah County, Perriton spent 35 years as a senior executive at GM. There he was the executive in charge of strategic alliances and new business development for General Motors Asia Pacific and president of General Motors Korea, where he also served as LDS mission president in 2007. Perriton's resume is typical of VIA's executive leadership.

"The idea at the very beginning was just to make electric motors for the electric car business," said West, VIA's chief marketing officer. But during negotiations, the company's founders, with close ties to GM, realized there was a perfect niche operating as a second stage manufacturer doing factory conversions of GM's existing models. Though its headquarters and research and development are based in Utah, VIA's manufacturing plant is located in Michigan.

"We take a GM truck and convert it to an electric truck at the factory. Not only is it easier to do, it allows us to get a lot further down the road. It allows us to move quite quickly," West said.

Unlike rival electric car company Tesla, VIA is able to concentrate on its hybrid electric motor rather than worrying about windshield wipers and all the other bells and whistles an integrated car company must take into consideration. West said that insofar as they modify existing vehicles rather than build their own from the ground up, VIA is dependent on GM, but that the relationship is symbiotic. Under intense scrutiny by both shareholders and the federal government, GM couldn't afford to take the kind of innovative risks a company like VIA is willing to take, even if they were ultimately beneficial, West said.

Perriton said VIA opened shop asking itself, "what can we do to make an impact that is a game-changer?" He said that after ana-

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Let's turn the answers on.



Waste Management's Utah fleet constitutes largest CNG truck group in state



In addition to operating a fleet of CNG-powered vehicles, Waste Management has opened a retail natural gas fueling station in West Jordan.

By Andrew Haley
The Enterprise

Waste Management (WM), the colossal garbage and recycling firm based in Houston, opened a natural gas fueling facility in West Jordan on April 3 with cooperation from partners PetroCard and Utah Clean Cities. While the compressed natural gas (CNG) facility operates a small retail operation for retail consumers, the majority of the operation's footprint is devoted to maintenance and refueling of WM's fleet of 19 CNG-powered garbage trucks serving West Valley. According to Scott

Bradley, WM area vice president for Utah and Colorado, the 19 trucks, which WM introduced last summer, constitute the largest fleet of heavy-duty CNG trucks in the state, though they represent a fraction of the 1,000 CNG trucks the company operates nationwide.

"Waste Management is very excited about the capital investments we are making in Utah and the Salt Lake City metro area, investments that support both the viability of Utah business as well as the sustainabil-

see WM page 15

Lehi firm inks marketing pact with maker of recycled modular sidewalk pavers

By Andrew Haley
The Enterprise

California-based TERRECON Inc., a manufacturer of non-concrete modular sidewalk pavement made from recycled plastic, has entered into a distribution and marketing agreement with Lehi Block Co. The agreement strengthens TERRECON's ties to Utah; its TERREWALKS modular sidewalk tiles, pressed from a loaf of shredded post-consumer plastic, are manufactured in West Valley City at a plant operated by Ace Recycling, a subsidiary of Ace Disposal, TERRECON president Lloyd Sommers said.

TERRECON arose out of a chance meeting of minds between CEO Lindsay Smith and senior vice president Richard Valeriano in 2001. Smith, then a Hollywood film producer, was incensed to learn that 26 ficus trees in her Gardena, Calif., neighborhood were due to be cut down because their roots had damaged city sidewalks. After reaching out for solutions to numerous municipalities in the Los Angeles area, she discovered that Valeriano, then senior public works inspector for Santa Monica, faced with similar concerns, had convinced Santa Monica to install rubber pavers in several pilot sites the year before, after the solution appeared to him in an anxiety-fueled dream.

After convincing several cities in

greater Los Angeles to adopt modular rubber sidewalks, Smith founded Rubbersidewalks Inc. in 2001 to manufacture the original rubber pavers. In 2007, the company released its TERREWALKS line of improved pavers made from recycled plastic. The 2 by 2.5-foot plastic tiles weigh 35 pounds, have a slightly elevated center to combat pooling and feature a grooved underside of sluiceways that channel water back into the aquifer.

The March 23 agreement between TERRECON and Lehi Block gives the 66-year-old family-owned Utah company exclusive rights to sell TERREWALKS in Utah, Wyoming, Nevada and to the U.S. properties of The Church of Jesus Christ of Latter-day Saints. Terry Powell, vice president of sales and marketing at Lehi Block, said he had not yet signed any sales deals for the new material, but interest, particularly among architects, is high. Powell, a career salesman in the paver and concrete block business, said that all new products take a while to assimilate into the marketplace.

"I've introduced several products to market here and it just takes time to gain approval. It takes a long time for [people] to accept them. There's a lot of potential out there," Powell said.

He said for the time being the prima-

see TERREWALKS page 22



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What's the ROI on a photovoltaic system?

The big question that is asked most when considering a photovoltaic system is, "what is the return on investment (ROI)?" It is a good question. In answering we need to consider several points: Today's dollars, interest rates, tax incentives, rebates and, of course, value.

Financing a photovoltaic system with a home line of credit can be a good idea. After all, we have historically low rates. Whether refinancing or using a line of credit, a positive equity would be required. Financing a photovoltaic system with a home could spread the cost of the system over 30 years. This would most likely give a positive cash flow from the savings of the power bill. If buying or building a new home this is a good idea in most cases.

Financing with a signature loan or an unsecured loan is another way to go. Interest rates with these types of loans are typically higher than with a home loan. The term of the loan is limited to 10 years in most cases. The longer the loan, the higher the interest. As we all know, interest rates are going up in the future, and loan companies also know this. In most cases, the borrower will need a FICO score of 650 or above, and a debt to income ratio of 45 percent is desired. Most of these types of loans are limited to \$25,000. Some loans may not have a cap but require a percent down on the project. Solar is becoming a commodity that can

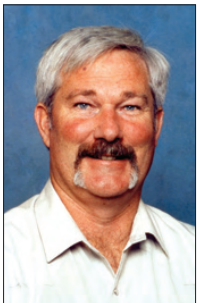
be bought, sold and financed.

Photovoltaic system leasing poses the greatest risk to the homeowner. In most lease agreements there is the lack of clear definition regarding what happens at the end of the leasing term. A significant and as yet unknown cost could be incurred by the homeowner whether they elect for system removal, re-enter a new lease or take ownership of the system at the fair market value. Some leases are also potentially detrimental to the contractor's business, relegating the entrepreneur to the role of subcontractor and impacting margins, cash flow and control of the business.

Paying for the system up front will result in no finance charges to consider. If using savings, there would be no interest made on the money from the bank. Is the photovoltaic system a better investment than money in the bank? If a bank is paying 0.4 percent on a savings account, it does not take much to make a good argument for the investment in solar. In most cases a ROI is more than 3 percent for a solar system. Sometimes the state or the utility company will offer rebates on renewable energy systems. If there are rebates available, a ROI on the first year could be as much as 50 percent. That is a pretty good return.

Using a 5 kW photovoltaic system as an example, what would the ROI be for

see ROI page 22



Stewart Somerville



Jonathan Johnson

Clean air is a priority in the business community

Utah has a long history with air quality issues dating back to the early 20th century. For example, in 1942 the Salt Lake Chamber of Commerce had an airplane that would fly around on particularly bad air days to see who was burning coal. Things have changed a lot since then. Our air quality is much better. However, on occasion, one of hurdles to getting businesses to come to Utah can be the poor air quality — particularly if they make a site visit during one of Utah's winter inversion days.

Businesses come to Utah for a number of reasons — well-educated and hard-working employees, cost of living, a major international airport, quality and pace of life and access to great outdoor recreation, to name just a few. The state's natural beauty is a real draw and has been proven to attract new businesses to our area. But, we need to make sure that poor air quality doesn't hinder that growing trend.

Good employees have left Utah companies citing bad air as the reason they leave Salt Lake. So, it is important that we clean our air for those we are trying to recruit to come here and for those of us who live here with our families. The bottom line is that our poor air quality can have an adverse effect on our economy. Sometimes, it can keep us from getting federal funding, and without federal funding, we can't continue to build needed highways and alternative transportation.

The Salt Lake Chamber has air quality initiatives under way. The chamber has

recently created a Clean Air Champions program that encourages and rewards businesses for voluntarily implementing clean air best practices. For some of us, that means providing incentives for our employees to carpool — such as giving employees monthly stipends and preferred parking for carpooling. For other companies, it could mean encouraging and paying for public transportation passes. There is a whole array of activities that businesses large and small can do to help keep our air clean. Utah businesses want to be good citizens. We want to help keep the air clean.

The governor's office, through its Utah Clean Air Partnership (U-CAIR) initiative, is helping to improve air quality in Utah by coordinating many existing air quality initiatives in the state and building on the emission reductions local governments and community organizations have already achieved.

The Salt Lake Chamber is actively involved in these efforts — pursuing similar goals, looking at data, trying to speak the same language and consolidate and simplify the alphabet soup of government and quasi-government agencies that participate in regulating air quality, and encouraging businesses to do something to improve Utah's.

Because the air is something that all Utahns own in common, keeping the air quality good is an appropriate activity for some government involvement. Without government involvement, Utahns risk suf-

see AIR page 22

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Top Sustainable Design Firms in Utah

Ranked by Amount of Projects in Design, Construction, or Pending LEED Certification

Company Name Address	Phone Fax Web	Amount (\$) of projects in design, construction, or pending LEED certification	Total construction value (\$) of LEED certified projects completed in 2011	Number of projects in design, construction, or pending LEED certification	Total sq. ft. of LEED certified projects completed Total sq. ft. of projects in design or construction seeking LEED certification	# of LEED accredited professionals # of LEED certified projects completed	Noteworthy sustainable design projects
Architectural Nexus 2505 Parley's Way Salt Lake City	801-924-5000 801-924-5001 archnexus.com	\$1.47 billion	\$86.6 million	20	299,900 2.89 million	42 10	LDS Church prototypical sustainable design meetinghouses
GSBS Architects, PC 375 W 200 S Ste 100 Salt Lake City	801-521-8600 801-521-7913 gsbsarchitects.com	\$408 million	\$29 million	22	1.01 million 1.66 million	38 13	Hillside Middle School, Salt Lake City Public Safety Building, Net-Zero Essential Facility
VCBO Architecture 524 S 600 E Salt Lake City	801-575-8800 801-531-9850 vcbo.com	\$277.2 million	\$84.8 million	10	1.64 million 1.08 million	12 10	Westminster College Meldrum Science Center, Portico at Meridian Medical Office Tower, Intermountain Health Care Salt Lake Clinic, University of Utah Date Center
FFKR Architects 730 Pacific Ave Salt Lake City	801-521-6186 801-539-1916 ffkr.com	\$266.5 million	DND	7	440,671 2.29 million	15 6	Daybreak Corporate Center, Bogue Building, Deseret Building
CRSA 649 E South Temple Salt Lake City	801-355-5915 801-355-9885 crsa-us.com	\$174.7 million	\$36.47 million	6	608,903 394,010	8 10	Swaner EcoCenter, University of Utah Sutton Geology and Geophysics Building, Utah State University Bingham Entrepreneurship & Energy Research Center
EDA Architects, Inc 9 Exchange Place Ste 1100 Salt Lake City	801-561-7600 801-363-3149 edaarch.com	\$155.7 million	DND	8	452,687 573,000	5 4	Questar Office Building, U of U Beverley Taylor Sorenson Arts and Education Complex, U of U Skaggs Pharmacy Research Building, Salt Palace Expansions Center, EDA Office, John W. Gallivan Center Remodel and Addition, Ogden Nature Center, J.L. Sorenson Recreation Center
AJC Architects 703 E 1700 S Salt Lake City	801-466-8818 801-466-4411 ajcarchitects.com	\$112.5 million	\$55 million	15	132,000 485,000	7 9	Utah Sate University USTAR Building, Utah State University, Wetlands Discovery Point, The Children's Center
Pasker Gould Ames & Weaver, Inc. 5263 S Commerce Dr Salt Lake City	801-266-4669 801-262-6122 DND	\$48 million	\$4.77 million	3	33,152 284,312	1 1	River's Edge School, Utah Career Center
Dave Robinson Architects 6465 S 3000 E Ste 102 Salt Lake City	801-272-0242 801-272-0269 daverobinsonarchitects.com	\$30 million	\$8 million	1	52,000 306,000	1 1	Northrop Grumman Addition Salt Lake City Intermountain Health care IMAT

DND= Did Not Disclose N/A= Not Available
Please note that some firms chose not to respond, or failed to respond in time to our inquiries.
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Is Utah's next Golden Era really green?

It's time for something new. There's an upcoming generation, accompanied by members of previous generations, of course, that are aching for "the next big thing." We anxiously await the accompanying increase in productivity and excitement and profits that we sense is just over the hill, so to speak. Truth told, even though a return to pre-recession activity levels would be OK, what we'd really like, and what the world generally delivers, is an opportunity that is bigger and better than anything that has come before. Could those times really be just around the corner? Actually, they probably are.

"Sustainability" seems to fit the bill. The various components that make up sustainability are so diverse as to be colossal. There's energy efficiency, renewable energy, more effi-

cient building techniques, urban gardening, advanced transportation mechanisms, different approaches to health and fitness and education, aquaculture, advanced soil conservation techniques — the list is endless! Add them all up and if you have the ability to connect the dots, you should be able to see that "the next big thing" is taking shape. It's going to herald a change in lifestyles. There's no doubt about it.



James Johnston

This is not mere speculation. The studies and whitepapers and books and talks and experts that support these observations are ubiquitous. According to a McKinsey study, energy efficiency alone will be a \$1.3 trillion opportunity between 2009 and 2020. Bloomberg reported that renewable energy expenditures were \$260 billion worldwide in 2010, and grow-

ing. The solar PV market has grown 40 percent year over year for the past five years. Germany has installed the equivalent of 62,500 soccer fields of solar panels. There's more. Lots more. As Sen. Everett Dirksen once observed, "a billion here, a billion there, and pretty soon you're talking about real money."

It is clear that "sustainability" will definitely affect every one of our businesses; it could, perhaps even improve our lifestyles. Then there is the worldwide ripple effect. If you've ever thrown a rock into a lake (who hasn't?), you know how it works. Except in this case, think of the ripple effect in terms of standards and lifestyles.

Anyone who has traveled overseas realizes that people in foreign lands look to America and Americans for lifestyles and standards. Doubt it? Count the Nike swooshes. There are going to be a lot more consum-

ers in the next 20 years. Recent estimates suggest that two billion new members of the middle class will be coming from countries like China, India, Russia and Brazil. Who do you think they are going to emulate? If we play our cards right, it will be America and American lifestyles. Anybody who thinks that our nation, land of the free and home of the brave, is going to give up our right to lead the world is sadly mistaken. Our actions will be worthy of ideals. You can count on us rising to the occasion.

Connect the dots, and you realize that sustainable lifestyle technologies and services represent more than just a state of mind. Not only do they constitute a mega-opportunity, they'll provide an ideal backdrop for us to reassert our leadership in the 21st century.

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WM

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ity of our natural resources. Waste Management will continue to invest in new technologies, invest in green jobs and invest in Utah," Bradley said.

"Natural gas-powered vehicles run cleaner and quieter, improving air quality and reducing noise pollution. West Jordan and the surrounding areas can look forward to cleaner air and neighborhoods as CNG vehicles are used more often," he said.

WM is in the midst of a massive capitalization process of transitioning its national fleet of 18,000 Class 8 collection vehicles from diesel to natural gas. The 1,000 it has already converted are the largest fleet of heavy-duty CNG waste collection trucks in North America today. Once it completes the transition process for its other 17,000 trucks, WM's CNG garbage truck fleet will be unique globally — a centrally operated consumer base of sufficient size to generate its own market forces.

While it touts the environmental ramifications of its decision to transition into natural gas, WM also stands to significantly reduce its overhead by moving away from diesel and toward natural gas. With North American natural gas production experiencing near-vertical growth, prices are projected to remain low for decades. WM estimates that with each conversion of its Class 8 trucks to natural gas, it reduces its diesel consumption by 8,000 gallons annually.

With average national diesel prices bobbing and weaving around \$4 per gallon, by reducing diesel fuel consumption by 8,000 gallons per year for each of its 18,000 Class 8 garbage trucks, WM will avoid spending \$576 million per year on diesel. CNG sells for a fraction of the cost of diesel, meaning a multi-billion dollar capital investment program will still reap a significant net gain. While the West Jordan facility buys its gas from Questar, nationwide, WM is investing in state-of-the-art landfill gas to energy technologies that harvest naturally occurring methane from the vast seas of organic waste the company scoops up off curbsides.

Extracting value from waste has long been a WM strategy. The company recognized the growing market for recycled materials years ago. The recycling market tanked following the global economy's 2008 downturn, but both the harvesting of and conversion to natural gas seem to offer WM a potential windfall, as landfill gas to energy production turns the garbage company into a de facto energy supplier and converting its fleet to CNG enables the firm to

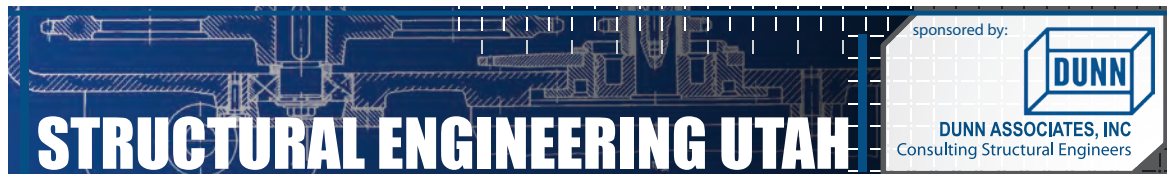
reduce its fuel outlays and potentially become its own vertically integrated fuel supplier.

Natural gas capital investment does not come cheaply, nor is natural gas free. New CNG trucks come with a \$300,000 price tag, and CNG refueling facilities cost several million dollars each. In 2009, WM began replacing its 180-vehicle Seattle fleet at a total investment cost of \$36.5 million, with \$7.5 million of that for construction of a new fueling station.

According to reports issued to WM's stockholders, the company's natural gas conversion plan, outlined in 2007, will spend upwards of \$500 million per year over a decade in order to increase its fleet's fuel efficiency by 15 percent and to reduce its fleet emissions by 15 percent by 2020. A 15 percent decrease in fuel expenditures will translate into billions saved over the short term, with the potential for billions more if the company can become its own fuel supplier. On top of this, the environmental perks are gravy.

From a marketing standpoint, the company can point to sizable reductions in emissions. According to WM's 2010 Sustainability Review, a document prepared for stockholders, an independent environmental review conducted by consulting firm Galdstein, Neandross & Associates, converting its Seattle fleet to natural gas will lead to a 97 percent reduction in nitrogen oxides, a 94 percent reduction in airborne particulate matter, a 20 percent decrease in overall greenhouse gases and a significant drop-off in noise pollution. The Achilles heel in efforts by the natural gas industry to portray itself as a cure-all to greenhouse gas reduction lies in the fact that methane, the primary component of natural gas, is far more deleterious to the environment than CO₂.

Though it is far from a cure-all for climate change, natural gas captured in landfills may prevent harmful gasses that otherwise would naturally seep from the ground from entering the atmosphere, enabling WM to cause a net decrease in its overall methane emissions in a manner that provides it with a cost-effective alternative to traditional vehicle fuels. With the vast majority of North American natural gas production coming from drilling operations reliant on hydraulic fracturing, or fracking, a procedure under intense scrutiny that has environmentalists whipped into frenzy, the development of a landfill gas to energy industry may provide a fracking-free alternative for worried natural gas consumers. In the short term, WM can boast about its environmental bona fides while laying the groundwork for billions in savings.



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What added value can you expect from a structural engineer?

By Ron Dunn

"Would you like fries with your order?" is a common phrase with an upside benefit to both parties. The client potentially enhances the order for a minimal cost and the vendor increases revenue. In all aspects of our lives and in most business transactions, a little bit more goes a long way. We purchase tires that cost a little bit more and receive significantly better performance. Expensive shoes are usually worth their cost in both comfort and wear. Well-engineered cars last longer.

How does this apply to structural engineering? What added value can one expect? Doesn't satisfying current building codes provide all the value we need? Doesn't the code ensure our building is safe against all forces of nature? Why should we have "fries" with our building structural design, and what can this cost? Usually no more than a steel strap to secure the typical water heater.

Living in a highly active seismic region should cause us to ask specific questions. Structures designed according to the current building code should resist minor earthquakes without damage, resist moderate earthquakes without significant structural damage and resist severe earthquakes without collapse. Codes are all about life safety and are not particularly concerned about the structure itself.

With considerable economic risks at stake, life safety may not be enough. Structures house businesses that cannot be disrupted, equipment that cannot be taken offline and people who need a place to work. The major economic losses after an earthquake are a result of businesses not having a place to func-

tion due to structural damage. Imagine your costs if your business were to be shut down for any extended period of time.

Significant advances have taken place within the structural engineering field. For a little bit more, building scan be significantly enhanced to mitigate these risks. This upgrade can be incorporated in new designs as well as existing structures. Over time this expense should provide added value to building owners. Building tenants should find value in those buildings that can provide this added security to their business. We make these value decisions every day. If an air bag were only an option when you purchased a car, would you elect to have one? It is a comfort even though you never expect to need it.

Next time you interact with a structural engineer and they ask if you would like something else with your order, know that for a small investment you can receive significantly added value. Not all engineers are created equal; be selective, seek experience and ask difficult questions. Structural engineering services are professional services similar to other professions such as accounting, law and medicine. Answers to structural questions are as varied and subjective as there are individuals in our profession.

Ronald Dunn is the owner and founder of Dunn Associates Inc., a structural engineering firm in Salt Lake City. Since founding Dunn Associates in 1995, he has been directly responsible for structural designs as well as supervising a large staff of professional engineers.



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DUNN ASSOCIATES, INC
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GOLDEN

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If need be, cast aside your skepticism for a moment. Let's just say, for the sake of argument, that it is true: "responsible lifestyles" will be among the new, dramatic high flying business opportunities. Assume that the current economic slowdown fades away, we cast off the doldrums and American consumers get excited again. Let's say that sustainability is "the next big thing." Would you like to position yourself to "get a good seat"?

Let's start by asking one of several key questions. Could Utah become one of the sustainability's epicenters? Sort of an international center of self-reliant excellence? The answer is "yes."

Utah and Sustainability

Utah has already demonstrated that it can be an innovator and leader. We did it in high tech, we do it in mining and engineering,

and our "sustainability" credentials are strong. Utah's philosophical heritage is in sync with the principles of self-reliance and sustainability — this is the direction the world is headed, and it just happens to be part of our genetic makeup. It could be considered a sort of Utah mantra ... after all, aren't we already the epicenter of the food storage universe?

Seriously, we have a good start. For more than 150 years, we have embraced principles that reflect a commitment to sustainability. Likewise we are known for our entrepreneurial spirit. To back us up, we have world-class educational institutions with great scientific and engineering talent — Utah State University, the University of Utah, Brigham Young University and UVU are accompanied by a host of other institutions. It wouldn't take much for us to turn on a spigot of innovation out of which would pour countless technologies and advances and services ready-made

from nothin' leaves nothin'." And I might add: Somethin' from someone beats nothin'.

The bottom line for those of us who want to enjoy some great travel is that this is the year to go on our dream vacations.

Don Shafer has been hosting radio travel shows in Salt Lake City for more than a dozen years, and was taught everything he knows by travel experts he has interviewed. Although some have called him "The Travel Doctor," he holds a Ph.D. in a totally unrelated field, religion.

for commercialization.

Utah has always prided itself on the fact that we have the natural resources to be self-sufficient. Think what would happen if we, as a state, put our minds together and decided that when individuals, businesses, corporations, institutions, communities and other orga-

nizations sought out sustainability strategies, we could say, this is most definitely "the place." What if we decide that we are people that everybody turns to because we understand how to achieve sustainable, self-reliant and self-sufficient lifestyles?

It could be fun, and profit-

able.

OK. Check, Utah is the place.

Having sold his first solar and wind systems in the 1970s, James W. Johnston can be considered a renewable energy veteran. He is vice president of sales at Progressive Power Solutions (www.ppswest.com), Orem.

SHAFER

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ing. In most cases you can cancel a cruise up to 45 days in advance with no penalty. Most hotels and resorts will let you cancel up to four days before you are scheduled to arrive. I think many of our friends from European countries reserved all of the above about six months ago. Remember, those folks get four to six weeks vacation every year. They have the time, but now they don't have the money, so they are canceling.

Meanwhile, hotels, resorts and cruise ships are being built with a frenzy. These are items you can't cancel easily, and certainly not without ample notice. Say, about two or three years.

Also, bear in mind the fact that hotels, resorts and ship state-rooms have no shelf-life. The only day you can sell today's room would be today. Today is worth zero tomorrow. Therefore, companies selling travel venues will seek to get some money now, rather than no money later.

Hotels, resorts and cruise ships also have huge staffs of service employees who depend on tips as their major source of livelihood. If you have a cruise ship, for example, that holds 3,000 passengers and there are 600 employees serving them, it's much better to have a ship full of passengers paying a third or a fourth what they would normally pay than to have no passengers, because they would pay zero, and your employees would have no tips. Also, you have the probability of selling shore excursions, beverages, gambling, merchandise and spa treatments to passengers who are on board.

I think it was Billy Preston who had a hit recording singing this great axiom for businesspeople in the travel industry: "Nothin'

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TERREWALKS

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ry focus of TERREWALKS was to mitigate damage to and from trees. In a typical case, about six feet of sidewalk on either side of an offending tree, whose roots are causing cracking or hazardous uplifts, would be replaced with the interlocking, lightweight pavers. While he said they have a little more spring in them than cement, they look like the real thing.

“These panels look very much like concrete. They mimic the color and texture of concrete so they don’t stand out like a sore thumb. They have a more per-

sonal feel than a monolithic slab feel,” Powell said. “The nice thing though is it adds resilience, so it’s a little nicer to walk on.”

He said he is preparing sales presentations for officials from Lehi, West Valley City, Salt Lake City, the LDS Church and other potential clients, but that, for the time being, TERREWALKS’ biggest enthusiasts are those in the design community, particularly architects, who are constantly searching for ways to innovate green building practices and gain LEED credits. Because TERREWALKS are made from recycled plastic, they decrease overall landfill use and reduce the heat island effect

caused by solar radiation being trapped in exposed concrete surfaces. With its slightly elevated center and system of sluiceways, TERREWALKS also reduce water runoff, allowing for greater rain capture that mitigates stormwater retention reservoir sizes while recharging the aquifer.

Sommers said that for its first several years, his sales team had arranged demonstrations for architects and builders that presented various solutions his company’s products were good for. After a while, he said, the company realized that the audience members were often coming up with better solutions and uses themselves. Since then, he said, they have enjoyed watching TERREWALKS be applied in a variety of innovative ways.

Because of their low weight, reduced thermal profile and rain-shedding capability, they made good surfaces for rooftop decks and walkways. Designed to be

less slippery, inherently softer, with greater water-shedding capacity than concrete, TERREWALKS have also been used as alternative building materials around swimming pools. Their portability and reusability recently made them the solution for some Colorado schools that, while under remodeling, wanted temporary sidewalks to link students to temporary out-buildings, Sommers said.

While sales in Lehi’s territory may not have taken off yet, TERRECON is already seeing strong business performance company-wide.

“In 2011, we grew 25 percent. This May, through May last year, we grew 15 to 20 percent. We are very fortunate, especially in this environment. We are definitely growing,” Sommers said.

He gave two factors credit for TERRECON’s double-digit growth. First, he said, TERREWALKS presented a real solution that filled a real demand. Second, he cred-

ited Powell, Lehi Block and those like them who had successfully opened many new markets to the Californian company.

While architects continue to find new ways to use TERREWALKS, TERRECON continues to pitch the product as a tree-removal alternative. Municipal governments offer the prospect of huge potential contracts, as do school districts and other clients. The LDS Church in particular, with its vast real estate holdings in the U.S. and abroad, offers the potential for major growth.

That potential is one reason TERRECON selected West Valley as the site for its plant. The manufacturing process for TERREWALKS is relatively low-tech; “in a very elegant way it’s very simple,” Sommers said. The West Valley plant’s machines are not prohibitively capital intensive, training is straightforward and the existing plant has plenty of room to grow.

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ROI

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a Rocky Mountain Power customer? This size of system would offset the average home’s power bill, although it is important to keep in mind every home is different and everyone’s lifestyle is not the same. Today this system’s cost is \$20,745.20.

The state of Utah offers a \$2,000 tax incentive on a photovoltaic system of this size, and the federal government offers a 30 percent tax incentive. We would have to take the state tax incentive off before figuring the federal tax incentive. The federal tax incentive would be \$5,623. State and federal tax incentives together total \$7,623, giving an ROI for the first year of 36.75 percent.

Keep in mind, we are talking about a 25-year warranted product with an expected life of 40 plus years. With very conservative estimates, the total production of this system over a year is expected to be around 9760 kWhs. A kilowatt hour costs \$.0995440 for the first 1500kWh used per month, for a Rocky Mountain Power customer. The return before figuring taxes would be \$971.55 per year. It would take 13.5 years at today’s utility cost for a return. This is considering just the cost of a kilowatt hour of electricity, without taxes. Taxes and other charges can add up to \$.1161 per kilowatt hour, making a ROI even better. In other states, such as Colorado, the cost per kilowatt is 22 to 26 cents. In California it can be as high as 40 cents per kilowatt hour. We have it good here in Utah because the utilities are regulated.

We all know utility costs are not going to at the stay the same cost as they are today. The average utility rate increase for Rocky Mountain Power over the last 30 years has been 5 percent per year. At this rate of increase, the cost per kilowatt hour in five years would be \$.1271. The ROI after five years would be \$1,240 per year. At the end of five years we would have had a return of \$5,368.43. The system will give a ROI in less than 12 years. Keep in mind that utility rates in the

last few years has far exceeded 5 percent inflation.

A commercial facility could save much more with a photovoltaic system if they are paying for demand charges. Businesses would also be able to write off the cost of the equipment, making a ROI much quicker.

If the peak power consumed each day could be trimmed by a renewable source, at the point of consumption, it would relieve the demand on the transmission lines and generation, leaving added capacity for future growth.

Over the last three years, the costs of installing a photovoltaic system has been cut in half. Products have never been more reliable. It makes sense to consider a renewable energy system today. The cost of photovoltaic systems may come down another few points, but with the improved manufacturing techniques being used today, the cost of photovoltaic modules are about as low as they are going to get. To get any lower there will be a new technology that will come along.

Stewart Somerville is the owner of Alternative Power Systems Inc., Cedar City, and is a NABCEP certified designer and installer of photovoltaic systems. He has over 25 years’ experience in the renewable energy field and lives completely off-grid, generating all of the power he uses with solar and wind.

AIR

from page 10

fering what is called the tragedy of the commons — where any one person doing what is best for him or her will use the common commodity to the detriment of everyone else. When that tragedy occurs, it is right for the government to be involved in finding a way to coordinate better prac-

tices. It is clear that by using his bully pulpit, Gov. Herbert cares. The Salt Lake Chamber is showing that the business community cares, too.

Jonathan E. Johnson III has been the president of Salt Lake City-based Overstock.com since 2008. He also serves as chairman of the Salt Lake Chamber’s Clean Air Committee and is dedicated to protecting Utah’s air quality.

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VIA

from page 7

lyzing the North American auto market, VIA's leadership decided to provide the electric car everyone seemed to feel they ought to drive while giving them the large, rugged vehicles they really want. Despite rising gas prices and flat fuel efficiency, Americans continue to buy light duty vehicles: vans, SUVs and, most of all, the full-sized pickup trucks that Perriton calls "the workhorse of America." "[We asked ourselves] what are the best-selling vehicles and where there are the biggest sectors of sales," he said.

"We know GM is working on the Volt and Toyota has the RAV-4 EV," Perriton said. "Nobody is working on the electrification of the No. 1, No. 3, No. 9-selling vehicles."

For its VTRUX pickup, essentially a hybrid Silverado, VIA installs a 300-kilowatt electric drive motor powered by a 24.4-kilowatt hour liquid cooled lithium-ion battery capable of providing a 40-mile range. Beyond 40 miles, the VTRUX automatically switches over to a 4.3L V6 combustion engine, attached to a 150 kilowatt electric generator, which recharges the truck's battery while providing an additional 300 to 350-mile range. The onboard generator can also provide enough external power to light up a house

or run an electric cherry picker, which makes the vehicle extremely useful to utility companies and contractors working outside the electric grid or after a catastrophe.

The VTRUX's ruggedness, off-road potential and portable power supply were all top selling points for California utility giant Pacific Gas and Electric (PG&E,) which has partnered with VIA from the company's founding. PG&E has long been committed to reducing its carbon footprint, in large measure by replacing its expansive vehicle fleet with something running on an alternate fuel source. But given the workplace environment of a utility company tasked with restoring vital civic functions after an earthquake, wildfire or other disaster, no other gas-electric hybrid on the market can meet PG&E's demands like the VTRUX.

On March 6, Verizon and VIA announced plans to collaborate on further development of an eREV to replace Verizon's traditional-fuel fleet. Like PG&E, Verizon stands to reap a fortune just from the potential savings on gas alone. But, Perriton said, VIA's eREVs also require far lower maintenance costs for air filters, oil, break drums and other parts than do regular light duty vehicles powered by internal combustion.

Magnified by the economy of scale, trimming vehicle costs amounts to big bucks that can



VIA Motors has agreements in place with both Pacific Gas & Electric and Verizon.

save a company operating a large fleet significant money over time. That's good for VIA, because its state-of-the-art technology, particularly its lithium-ion battery, is very expensive. For the regular consumer, a VIA eREV might make an attractive luxury purchase, but not one likely to net a profit over the course of the vehicle's life, though Perriton said that will change as the company grows.

"Our target customer right now is the fleet owner. The fleet owners look at this rather than as a transaction sticker price, they look at the savings over eight years. They look at it on a lifecycle total cost basis," Perriton said.

Perriton said it will be "two to five years" before VIA pursues the retail market, but that for the time

being "we've got our hands full trying to meet demand." Before it breaks into the retail market, VIA has to get its costs down to a point that its eREVs will be competitive. Perriton said the cost curve on the eREV battery, the vehicle's "single highest cost," is expected to drop by half as production volume increases and innovation fine-tunes manufacture.

"This business model we have is very strong. We are a privately funded company. We have no debt on our books. We are feeling confident but not too confident," he said.

Despite the potential for tremendous growth, Perriton said the company had no plans to relocate.

"This is an enterprise based in Utah and we expect to be a flag bearer in this great state," Perriton said.



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