

Raising The Sun

WRITTEN BY Tracie Sullivan | PHOTOS BY Asher Swan

**“My sun sets to rise again.”
- Elizabeth Barrett Browning**

In an ever-changing world, few things remain the same. Yet the rise of the sun has been as consistent as the hands of time.

Utah may be known for having the greatest snow on earth but energy gurus say it also has some of the best sunshine in the world, particularly in southern Utah where two solar companies are poised to tap into some of the power from those rays.



The Norwegian company Scatec Solar is on track to complete the largest solar project in the state the end of 2015. Based in Iron County, the Red Hills Renewable Energy Center sets adjacent to a Rocky Mountain Power Substation taking in 650 sprawling acres near Parowan. When finished, company representatives said the 100-megawatt single access tracking system used in the development will consist of 327,000 photovoltaic panels, enough to generate at least 100 megawatt hours of electricity and power for an average of 18,500 homes.

The single access tracker solar panels are similar to those seen on rooftops of homes and rotate with the sun throughout the day. The technology of the photovoltaic panels is more conducive to the local arid environment where water is considered a precious commodity.

"These photovoltaic panels don't need water like the ones in Nevada where they are using billions of gallons of water to generate the electricity. The only water these use is when they clean the panels. That's one of the great things about this project is that water is not an issue as it is in some of these others that have gone up," said Iron County Commissioner Alma Adams.

The Iron County Commissioners approved Scatec for a conditional use permit to build a second solar project estimated to generate more than 120 megawatt hours of electricity. The details of that development are not yet public. In addition to the Scatec developments, Iron County will also be home to 12 more solar projects developed by the Massachusetts based company, Sun Edison. These developments, each generating anywhere from 80 to 100 megawatt hours, are estimated to produce enough electricity to power more than 40,000 homes. This is a huge increase from other solar projects built in the state that only generate an average of one to three megawatt hours of electricity.

"Nothing else in the state comes close to comparing to these solar projects. Iron County is quickly becoming the capital of new energy," said Reed Erickson, county planner and special services coordinator.

BENEFITS OF SOLAR

While solar has been around for years, the total benefits it brings and the potential it has to improve our lives is only now being realized.

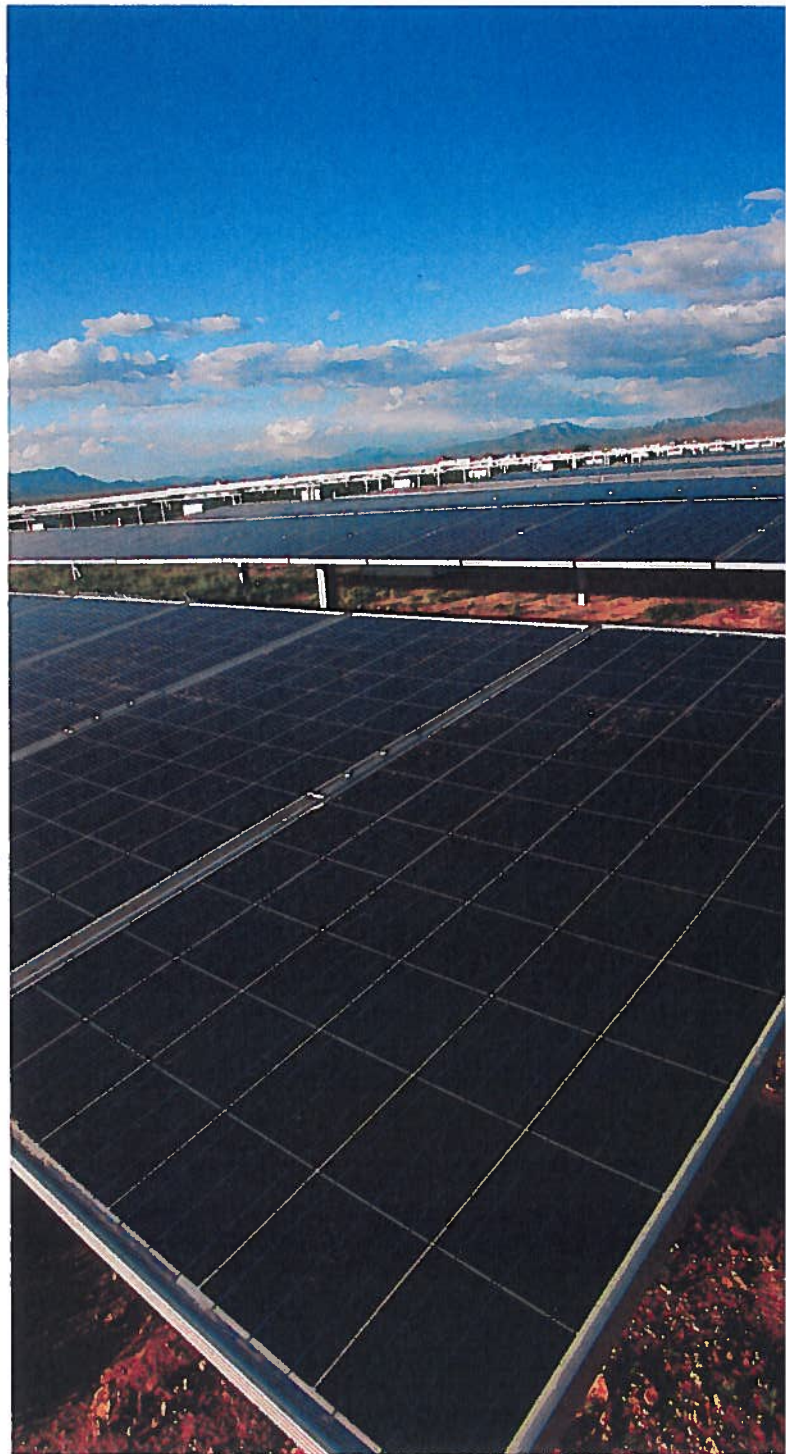
Environmental —

Obviously one of these is to reduce the carbon footprint.

The power from these solar projects in Iron County will be distributed on the grid and the electricity generated will largely remain in Utah, helping to lessen the state's dependency on fossil fuels – a goal heavily promoted by Governor Gary R. Herbert, who has been a strong proponent of renewable energies.

Praising the Sun Edison projects Herbert said, "We are pleased that the world's largest renewable energy developer has chosen to build these clean energy power plants in Utah."

Critics argue one of the downsides to this type of renewable energy is the loss of land. Because much of the property used for solar projects has previously been used for agriculture purposes,

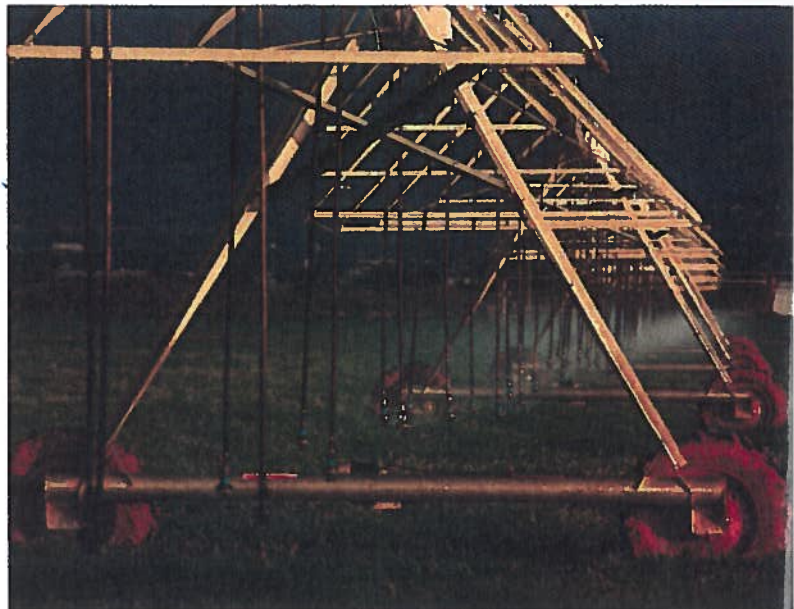
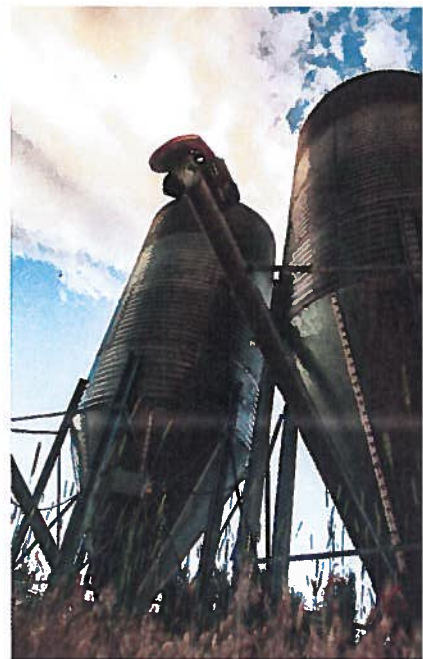


with these developments also comes the reduction of farms on the landscape.

However, one of the advantages of solar projects is the potential for dual use of the land. Since the panels stand approximately five to six feet above ground, farmers and ranchers can continue to use the land to graze their livestock.

"Cattle and sheep can graze in between the solar panels so while the land can't be used for growing hay or food while the solar development is there, the farmers and ranchers can still use it," said Danny Stewart, Cedar City Economic Director.

Another benefit of solar projects is that, unlike the fracking of fossil fuels, they can coexist among wildlife without it being detrimental, he added.



Economical —

Beyond the environmental benefits, advocates argue these solar projects also bring a huge boost to the local economy.

The solar developments currently being built in Iron County take their place among two other large power producing ventures in southern Utah, including a windmill farm and geothermal plant, both located in Beaver County. This trifecta of alternative power will keep the state a front-runner in harnessing renewable energy sources.

“These projects put Iron County in a position to capitalize on the future of solar energy and these other renewable energy sources,” Stewart said. “Having so many projects centralized here makes our location ideal for those who are looking to explore future technology that will help us improve how we generate and store this power.”

Moreover, the construction phase of these projects is expected to create hundreds of jobs that, while temporary, still provide relief to the area economy that has never entirely recovered after the Great Recession. At the time the project plans were laid out for county approval (2014), the local unemployment rate remained at 5.9 percent, 1.2 percent higher than the state average. The county’s poverty rate, at 20.7 percent, is also listed as one of the highest in Utah.

While the number of permanent full-time employment prospects are not as promising, the plans for the various projects still guarantee a total of at least two dozen new jobs. Most of these require a higher education and specialized training that mandates better salaries.

The job demand in southern Utah for trained employees in the solar industry is also likely to increase.

According to research from the International Renewable Energy Association, the global job prospects in the renewable energy industry also look promising, now employing more than 7.7 million people. Solar is the largest job creator. The research, published as part of the Renewable Energy and Jobs – Annual Review 2015 report, estimates an 18 percent increase in renewable energy employees just since last year.

IRENA’s findings come on the heels of research conducted by The Solar Foundation showing U.S. solar jobs grew by nearly 20 percent in 2014 and experienced 53 percent growth over the previous four years. In January, the Foundation’s surprisingly reported job growth in U.S. solar had actually outstripped the fossil fuel sector.

These numbers are also expected to increase following President Obama’s announcement in Utah last April to roll out The Solar Ready Vets Program that aims to retrain retiring military veterans and prepare them to work in the solar industry. The initial goal is to train 75,000 solar workers by 2020. G.I. Bill funding will be made available to the providers of this solar training.

QUESTIONS AND ISSUES

With all the positives solar development brings with it, the issues surrounding this renewable energy are just as many, leaving one to question whether the payoffs are worth it.

Government Subsidies —

In February the Taxpayers Protection Alliance released a report, "Filling the Solar Sinkhole: Billions of Bucks have Delivered Too Little Bang," claiming taxpayers have sunk more than \$39 billion annually into the solar industry over the last five years. During this same time, the federal government spent an estimated \$150 billion on solar energy and other renewable energy projects.

The report, the first of a multi-part expose, maintained the money went toward "financing grants, subsidizing tax credits, guaranteeing loans, bailing out failed solar energy boondoggles and otherwise underwriting every idea under the sun to make solar energy cheaper and more popular."

Other findings show these federal cushions can ultimately reimburse a solar power system owner as much as 60 percent of the costs over time.

These government subsidies are set to expire at the end of 2016 which is what has created the recent influx of these projects, said Dave Eckelsen, Rocky Mountain Spokesman.

"We've had more than two dozen projects recently get started, mainly in southern Utah," he said. "They're not all solar, some are wind projects."

Even companies whose business has little to do with energy or finance, like the Internet giant Google, have benefited from the public subsidies. One of the main investors in the Red Hills project, Google has invested in several renewable energy projects, in part to get federal tax breaks it can use to offset its profits from Web advertising.

And, as pointed out in the report, the federal government is not alone in subsidizing solar energy. "Personal tax credits related to solar products are available in 20 states, 18 states maintain corporate tax credit and deduction programs, and 14 states and Puerto Rico offer taxpayer-funded grants to support solar electricity.

Local government agencies are also subsidizing their share of these projects as seen in Iron County where tax incentives came at a multi-million dollar loss in potential revenue for the county and school district.

While the county did not offer the same tax incentives for all 14 solar projects, each one has been given a certain percentage based on the facility's size and potential revenue.

The Red Hills plan, the largest solar project, reported a projected total tax revenue of \$14 million over a 15 year period. But after the Iron County Commissioners approved a 70 percent tax incentive, the loss came at a whopping \$9.8 million for that same period leaving only \$4 million to distribute to the various government entities. Once these incentives have ended the county may collect another \$1 million during the last five years of the project.

The plan also allows for the commissioners to provide financial relief in other areas by reducing or eliminating all costs of doing business with Iron County including building permits and sewer, garbage and water impact fees.

Yet even with the tax incentives the commissioners argue the county is still better off than had the property been left in the green belt. Land in the green belt is used for agricultural purposes and is zoned as such in order to bring financial relief to farmers by reducing their property taxes.

"The county doesn't collect a lot of money on those properties when they're in the green belt. We have to put those properties in the green belt for the farmers or they would never be able to make it financially. It would just be too expensive to farm," Adams said. "So we are going to make more money on that property now, even with the tax incentives, than we would've if we'd left it in the green belt."

According to the various project plans submitted to the commissioners for approval, after all of the incentives the solar developments will collectively bring in an increased tax base of \$12 million in the first 10 to 15 years after completion and another \$2 million the five years thereafter.

The Iron County School District will benefit the most from this money with the largest portion going in its coffers. The rest will be distributed between the county, the water conservancy district, and two special service districts.

Industry executives and other supporters of renewable energy argue the public money has been vital to the projects, in part because financing for renewable energy projects dried up during the recession.

The previous high costs of developing solar energy also made it prohibitive for development. The subsidies helped provide the relief needed to make projects affordable.

Scatec was initially looking at a price tag of \$500 million to finish the Red Hills project but with solar panels drastically dropping in price and installation costs shaved by 30 percent in the last five years, the company is now looking at paying only \$140 million.

Finally, supporters of government subsidies argue the money also helps to create a level playing field with oil and natural gas producers that also receive their fair share of government handouts. In the 2010 fiscal year the Energy Information Administration reported \$3 billion awarded to oil and gas producers in tax breaks.

GOVERNMENT-MANDATED OBLIGATIONS

The Rocky Mountain electric utility company began to build natural gas projects during the upturn of the market in the early 2000s. Later when the Great Recession hit and construction came to a stop, the company's demands for additional power decreased.

"Solar companies, however, still continue to build projects knowing there's a guarantee of payment for the energy they produce from Rocky Mountain Power. Under the Public Utilities Regulatory Policies Act, utility companies are obligated to purchase the power from solar projects for 20 years, regardless of whether it's needed and in this case, it's not," Eckelsen said.



"The act was initially set up to encourage the creation of small power facilities, but in 2007 there were some changes made to the act that obligated us to purchase the power regardless of whether we need it and we don't right now. We're pretty well set for the next few years but we'll comply with the law," he said.

Despite that, Rocky Mountain maintains it doesn't need the power. Erickson said he believes it's better to have a variety of energy sources available in the state.

"These solar projects help to offset the fossil fuel demand and distributes the power on the grid from different sources," he said. "I think it's better to diversify and not have all your eggs in one basket." Purchase mandates can significantly drive up electricity rates which can come at the expense of the consumer, he added.

"Being obligated to purchase this power when we don't need it has the potential to cause some problems. That's our concern right now," Eckkelsen said. "As we have to manage more, and more variable power sources, it becomes a bigger and bigger issue and customers could end up paying more than they should." To ensure this doesn't happen, Rocky Mountain is currently working to reduce the length of the 20 year contracts he added.

The price Rocky Mountain will pay for this power is configured at calculating the utility's "avoided cost" of electricity, which reflects the utilities costs to purchase or generate the power from other resources. Since the costs vary from project to project the utility company doesn't know for sure how much they will pay for any one project until it is finished.

Energy Development —

According to the report from the Taxpayers Protection Alliance "solar energy remains prohibitively expensive – often three times more than electricity produced from natural gas and other sources. As a result, less than one percent of the electricity American consumers use comes from solar energy sources."

The U.S. Energy Information Administration shows the solar energy industry accounted for just one half of one percent of all the electricity generated in the U.S. during the first 10 months of 2014. Between January and October of last year, the U.S. produced a total of 3,431,473 million kilowatt hours of electricity. But only 15,973 million kWh were generated by solar thermal or photovoltaic solar modules, according to EIA's Monthly Energy Review.

The amount of solar power generated in 2014 increased from the 2,252 million kWh produced the previous year but still fell short, despite the billions of dollars in subsidies spent on hundreds of solar programs at the federal, state and local level.

The U.S. Department of Energy's Sunshot Initiative proposes to have solar energy account for 14 percent of all electricity generated in the U.S. by 2030 and 27 percent by 2050.

Utah has also proposed to have renewable energy sources account for 20 percent of all its electricity in 2025.

Rocky Mountain is projecting, even with the new solar projects, only 11.5 percent of its total electricity coming from renewable energies by that time, less than two percent more than the 9.2 currently being used.

During that same time the percentage of natural gas being used to generate electricity will see an 8 percent increase from 14 percent in 2015 to 22 percent in 2025.

Nevertheless, solar power has brought more diversity to Utah's energy portfolio, in turn, helping to decrease the state's dependency on coal. This is evident in Rocky Mountain's projections forecasting that coal will make up less than half the energy used by 2025 whereas, it currently remains at 61 percent. This trend will only continue as more renewable energies are developed.

Future Outlook —

Often referred to as the "new gold rush," many industry experts predict additional tax breaks and government rebates on the horizon to help propel solar all over the country including Utah.

A 2014 industry report showed that from 2008 to 2012 the United States doubled its supply of solar power. The second quarter of 2014 saw another 832 megawatts of solar photovoltaic power installed in the U.S., a 15 percent increase over the first few months the year before.

But, as Eckkelsen points out, solar and wind are not dependable energy sources since their ability to provide electricity is limited to the availability of sun and wind.

"One of the issues with solar is that we can't store it and the only time we can use it is when the sun shines," he said. "The fact is, solar and wind are great but the sun has to be shining and the wind has to be blowing in order for these to generate power."

For this reason critics argue solar is an unrealistic alternative to fossil fuels. How fast and how much solar continues to grow is largely dependent on whether it can be stored in the future.

Ironically, it is this very problem that has made solar an investors and inventors game. The U.S. Department of Energy boasts it is linked to more patents than any organization in the world as more people try and capitalize on this resource.

So the discussion and research continues. For as long as the sun will rise, solar power will forever remain a hot topic.



Tracie Sullivan is an award-winning investigative reporter whose passion is uncovering and exposing corruption, but she loves taking a break from the hard news to write a great human interest piece that reflects upon the fascinating people she meets during her various adventures as a journalist.