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Community Wind, Solar – the Latest Way of Keeping Up With the Neighbors

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In West Texas, ranch land is making way for renewables. The 500-megawatt South Plains Wind Farm in Floyd County is one example where local stakeholders, major corporations and a community-focussed wind developer jointly participated in a project. The concept and plan was the work in 2010 of **Tri Global Energy LLC**, but the project development equity for South Plains came from accredited local investors, who chose to back the wind park on economic grounds and for community impact reasons.

A typical Tri Global wind farm attracts some 100-150 accredited local investors who receive a return of 2 to 8 times their original investment after a period of 2 to 3 years, investing on average $50,000 apiece, **John Billingsley**, chief executive of the Texas-based wind developer, told Clean Energy and Carbon in an interview. Meanwhile, landowners are guaranteed a royalty and equity position in the new LLC, regardless of whether a turbine is placed on their land.

"Previously there was a lot of protest against the noise and aesthetics of wind turbines, and the fact some profit while others don't," said Billingsley: "Now with royalties being shared collectively, everyone has an economic interest and can see the logic behind putting a wind farm in their community."

Investing in sustainable energy also channels tax dollars back into local schools and businesses and provides clean energy supply for the community, according to Tri Global.

"In the first 18 months of the business, the model was so popular in West Texas that we started 16 different wind projects comprising 600,000 acres, with a total potential of 6,200 megawatts," Billingsley said. To reach construction phase, a typical 35-megawatt Tri Global project costs in the region of $3 to 4 million – achieved collectively through participating local investors, he explained.

Beyond that, equity from major corporations and/or bank loans combine to get the project to commercial operation. "The average cost per megawatt is about $1.5 million so if you have a 300-megawatt wind farm, the capex to get that to commercial operation is going to be about $450 million," said Billingsley.

Phase I of the South Plains project, with a capacity of 200 megawatts, was bought by **First Wind Holdings Inc**., which arranged $254 million in project finance through tax equity from **Mitsubishi UFJ Financial Group Inc.** and debt from **BayernLB Holdings AG**.

The second phase of 300 megawatts was sold to **SunEdison Inc.,** which raised $390 million in construction loans and tax equity, and subsequently arranged a project energy offtake arrangement with **Hewlett Packard Enterprise Co.**

Tri Global has recently sold **Hale Community Energy LLC** – a 1-gigawatt portfolio of wind farms spread across 190 square miles – to a subsidiary of **NextEra Energy Resources LLC**, and has another 3,800 megawatts-worth of projects up for grabs.

The company is also "getting its toes into the solar industry", having just acquired **K12 Solar Power**, a California-based rooftop PV provider. "I have an idea for a community-based residential and commercial rooftop solar model," said Billingsley.

Community Solar

The lofty heights of New York City's rooftops are the perfect breeding ground for shared solar arrays developed by **Clean Energy Collective LLC (CEC)**. Administered through local utilities, the arrays will be financed by local homeowners who make an upfront investment in a portion of the system, in return for net metering credits on their energy bills.

In other parts of the U.S., ground-mounted solar arrays are popping up, funded by either an upfront purchase or a subscription model, through a variety of developers including Boston-based **Solstice Initiative** and California-based **Everyday Energy.** Supporters say these 'community solar' projects enable members of the public to purchase solar power; stabilize their own power bills; and improve the environmental sustainability of their local area.

Source: Tri Global
Tri Global wind project on farmland in Texas.

A joint commitment between 68 U.S. cities, states and businesses to promote community solar was high on the agenda at the National Community Solar Summit, hosted at the White House on Nov. 17. Some 68 partners including developer **Clean Energy Collective LLC**, manufacturer **First Solar Inc.** and online-retailer **Amazon Inc.** are supporting the program, which aims to make solar energy available to a wide range of households. "Access to solar power could substantially reduce the energy burden of low-income households by providing stable electricity prices below local utility rates," a press release for the event said. U.S. state departments including the Department of Energy and the Department of Agriculture are also involved in the initiative, which will make available federal resources and develop the requisite business models.

Some 50 percent of U.S. homes and businesses are unsuited to rooftop solar, whereas with supportive regulation 100 percent would be eligible for shared solar, according to a *report* by the National Renewable Energy Laboratory: "Shared solar could represent 32 percent to 49 percent of the distributed PV market in 2020… Representing $8.2 to $16.3 billion of cumulative investment."

Companies such as **Next Step Living Inc**. in Massachusetts are capitalizing on the public's willingness to go green. The home energy provider is signing contracts equivalent to 2 megawatts per month for shared solar gardens that are connected to the grid and are funded by local

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people, according to the company *website*. "A customer can look forward to the certainty of lower electricity costs," by receiving solar net metering credits on their monthly credit bill, it says.

"If people are optimistic about rooftop and other distributed solar, they should be wildly optimistic about community solar," Eran Mahrer, senior director of utilities at **First Solar Inc.,** told Bloomberg New Energy Finance. "Without a doubt community solar is a more economical option – utility-scale power plants are being deployed at anywhere from $1.10 to $2.00 a watt installed, whereas with rooftop solar the best in class ranges from $2.50 to $5.50."

The California-based solar manufacturer supplies equipment to Clean Energy Collective, the largest developer of community solar in the U.S. The Colorado-based developer has 450 megawatts of solar plants in some stage of planning and development and is in discussion with 160 utilities across the U. S., according to Tim Braun, company spokesman. Thousands of customers have so far engaged in CEC projects.

The case for community solar is that it offers better economics, and that the assets are operated and maintained professionally, taking the upkeep responsibility off the hands of consumers and removing the impact on a homeowner's real estate. Averaging a few megawatts in size, these assets can be sited close to load and can stabilize grid networks with a high proliferation of distributed generation, such as those in Hawaii, California and Arizona, said Mahrer.

Utility Take-up

Utilities are increasingly picking up on the idea. **Consumer Energy**, a subsidiary of Michigan utility **CMS Energy Corp.** has recently opened a Solar Gardens program where participants can subscribe to half-kilowatt blocks via a lump sum or subscription payments, receiving net metering credit. Meanwhile, **NV Energy Inc.** has issued requests for proposals of 10 megawatts of PV to serve its subscription solar pilot. "At this stage, our indicative pricing is $60 per megawatt-hour, which relates down to about $4 for our 100 kilowatt-hour blocks," Marie Steele, manager of renewable energy at the Nevada utility, said. "Unlike some solar community programs, there is no virtual net metering, meaning people will pay a slight premium or around the same," but there are no upfront costs and the minimum contract is just one year, she told Bloomberg New Energy Finance.

Clean Energy Collective is also looking to introduce a new program that will allow any regulated utility to own a shared solar facility and rate-base the asset for cost recovery. Take-up so far is going well, Braun said. Utilities' dissatisfaction with the "inequitable transaction" of net energy metering for rooftop solar will boost the attraction of community solar, said Mahrer.

Additionally, normalization – spreading the cost of utility property throughout its lifespan, so that the cost and tax benefits of depreciation are borne equally by both current and future customers – has a greater impact upon customer cost for solar energy when the Investment Tax Credit stands at 30 percent, says Mahrer, than when it stands at 10 percent. "As a result utilities will initiate (and regulators will approve) much more solar asset ownership within the regulated arena when/if the ITC steps down," Mahrer explained.

One community solar initiative in the U. K. presents a different twist – with project capex incorporating skills training and reinvestment in community care. **Repowering** – a London-based solar developer — has engineered a program engaging local people in their energy choices in deprived areas of the capital. Around 60,000 pounds ($92,000) has been invested into the solar developer's community projects from 300 local people. Investors receive a return of between 3 and 5 percent annually with capital repaid in year 20, while investment values average 700 pounds ($1,000). Internships, mentoring and community investment all play an important role.

Crowd-funding initiatives that democratize funding of renewable energy, such as Abundance and Trillion Fund, are also gaining in popularity. However, the Conservative government's plan to reduce significantly feed-in tariffs (FiT) for small-scale solar and wind projects will mean that community and crowdfunding initiatives will have to search for new ways of making projects economic.

Trillion Fund – a U.K.-based internet crowdfunding platform for clean energy – has decided to end its renewable energy loans for the foreseeable future and focus instead on crowd-funding across all sectors. Meanwhile, **Repowering** plans to diversify its offering into "anaerobic digestion, combined heat and power and energy storage, to make the financial model work without the FiT," said Agamemnon Otero, company founder.

Source: Clean Energy Collective

The San Miguel Power Assoc. 1.1-megawatt community solar array in Paradox Valley, Colorado.

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The democratization of renewable energy assets is also gaining popularity in Asia. In China, companies are seekingmore unorthodox ways to raise capital at times of stock market lows. **United Photovoltaics Group Ltd.** plans to"distribute solar farms as bank products to thousands of households", Alan Li, chief executive of the solar-farm operator, said. The Hong Kong-based company was a trailblazer for solar crowd-funding in China last year – raising 10 million yuan ($1.58 million) for a 1-megawatt solar plant in Shenzhen, and seeks to finish its second fundraising effort by the end of this year. Likewise, **Kong Sun Holdings Ltd.** raised 1 billion Yuan ($161 million) via internet investment platform **Solarbao.com** for a 10-megawatt solar project in Mongolia.

The majority of bank financing in China's PV sector is for industrial-sized projects, making it difficult for smaller-sized projects to gain a foothold. Yet this segment does offer a significant opportunity — more than 70 percent of the 737 billion-yuan investment from 2014 through 2017 in China's solar sector will be for small-scale systems, according to a report by **Ernst & Young LLP**. Internet investment allows retail investors to spread their risk and provides an important source of backing to early-stage companies.

Optimism and Caution

Fundraising for local wind and solar assets, and online equity crowd funding of renewables, arguably fit within the concept of a 'sharing economy' – a sizeable market that could grow to $335 billion by 2025, according to **PricewaterhouseCoopers LLP**. In this environment of consumer choice and shared ownership it is unsurprising that the clean energy sector is also getting in on the game.

However, not everyone is convinced that community renewables are going to become a significant market when set against the $180 billion invested worldwide in utility-scale and small projects in wind and solar last year. Skeptics say that to attract participants, they will have to be structured carefully to deal with equity holders that want to sell,

Source: Clean Energy Collective
Owners and supporters at the 0.5-megawatt Colorado Springs community solar farm.

and with risks over project performance and third-party relationships. The economics may also be challenging, with projects unlikely to enjoy the same economies of scale in equipment purchasing, grid connection and debt costs that a much larger wind or solar park might enjoy.

Note: This article will also be available to Bloomberg New Energy Finance clients at www.bnef.com.