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Landfill generates solar power

By Urvaksh Karkaria

STAFF WRITER

An Arizona-based waste management company wants to turn trash into cash at a major Atlanta landfill.

Republic Services Inc. (NYSE: RSG) will convert 12 acres of its 48-acre Hickory Ridge landfill into an electric powerhouse, covering the landfill with flexible solar panels.

The roughly \$4 million investment, which Republic said would be the largest solar installation in the state upon completion in March, is expected to generate 1 megawatt of electricity. That's enough power to light up about 200 homes.

The solar project will generate green for Republic. The company, which gets a 30 percent tax credit on equipment and installation costs, will sell the power generated from the landfill to Georgia Power for an undisclosed amount.

When a landfill is full, it is typically "capped" with a waterproof geomembrane to keep landfill gasses in and water out. The membrane is then covered with soil.

Republic plans to cover part of the Hickory Ridge landfill's southern-facing slope with a thermoplastic polyolefin geomembrane, resistant to solar ultraviolet radiation, ozone and oxidation.

The membrane is covered with flexible laminated photovoltaic solar panels, a quarter-inch thick, or roughly the height of two nickels stacked one on top of another, said Tony Walker, Republic's manager of engineering.

"The landfill tends to settle through the years," Walker said. "We don't put glass panels on a settling slope."



SPECIAL

DeKalb County: Part of the Hickory Ridge Landfill, about 10 miles southeast of downtown Atlanta, is being draped with flexible solar panels.

Republic has proven the technology in a 135-kilowatt pilot program at its Tessman Road Landfill in San Antonio, Texas.

The company reported 2009 earnings of \$495 million on revenues of \$8.19 billion. That was up from profits of \$73.8 million, on revenues of \$3.68 billion, the prior year.

Monetizing the sun

The Hickory Ridge landfill in Conley, Ga., could prove to be a double renewable energy source.

In a separate project, Republic plans to take the landfill gas generated by

Hickory Ridge and use it for commercial heating.

By tapping the sustainable energy power potential of landfill gas and solar collection, the company will turn closed landfills into "energy parks," Walker said.

Construction of the Hickory Ridge solar installation is also being offset by a \$2 million state grant of stimulus money. Georgia received \$82.5 million in stimulus funding for state energy-efficiency and renewable energy programs.

The project is unique because it's using a capped landfill to provide a space to

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generate solar energy, said Shane Hix, spokesman with the **Georgia Environmental Finance Authority**.

"We're used to seeing solar panels on top of homes, on top of buildings," Hix said. "This is a unique way to generate renewable energy."

The Hickory Ridge landfill will use about 8,000 Uni-Solar made flexible panels — which are more expensive and less efficient than conventional panels.

The panels — because of the flexible nature of the thin-film amorphous silicon — cost about 8 percent to 10 percent more than traditional panels.

The solar cells are also less efficient,



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Walter Brown

Georgia Solar Energy Association

converting about 6 percent of solar energy into electricity, versus 15 percent for conventional solar panels, Walker said.

"The reason you want a high-efficiency panel in this business is when you have a confined roof space and you don't have a

lot of area," Walker said. "In the case of landfills, we are talking about acres of land. So, I don't need that high-efficient a panel to generate the same electrical output."

The solar project not only caps the unusable landfill for the required 30 years of environmental monitoring, it also partially offsets the cost of doing so by generating revenue, said

Walter Brown, chairman of the

Georgia Solar Energy Association.

Republic declined to disclose how much in revenue its solar installation would generate.

Georgia Power pays commercial customers 4 cents to 5 cents a kilowatt hour for solar-generated electricity, a spokeswoman for the utility said.

Brown, who wrote the grant that helped the Hickory Ridge solar project secure the stimulus funding, expects it to break even in about five years.

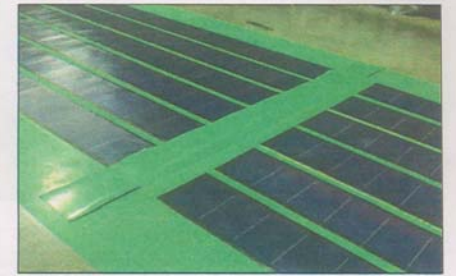
By converting the closed landfill — which otherwise has no revenue potential — into a power generator, Walker said, "you're taking a liability and turning it in asset."

Republic's Hickory Ridge project could be a precursor to many more such landfill-based solar projects in Georgia, Brown said.

As these solar developments mushroom, he wondered if the utilities would be in a position to purchase the increased volumes of solar-generated power at competitive rates.

"There are potentially hundreds of (megawatts) of solar potential at existing landfill sites in Georgia — close to where power is needed in the state," Brown said.

Reach Karkaria at ukarkaria@bizjournals.com.



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Flexible panels: Republic's Hickory Ridge project could be a precursor to many more such landfill-based solar projects in Georgia. The project will use about 8,000 Uni-Solar made flexible panels — which are more expensive and less efficient than conventional panels used on more-confined rooftops.

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