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## The Current - February 2011

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**Register now for Wednesday, March 9 Legislative Mixer in Annapolis**



Join us to share and learn what needs to be done to secure these and other clean energy legislative priorities before the lawmakers' work concludes in early April. Clean energy professionals and lawmakers are RSVPing for this 6-8 p.m. gathering at the Loews Annapolis Hotel just a few blocks from the State House.

If you registered for the January 27 Legislative Reception in Annapolis, you'll be admitted to this Mixer free of charge. Whether you attended or missed it due to the heavy snowfall the night before, you still need to register by emailing [dparrish@mdcleanenergy.org](mailto:dparrish@mdcleanenergy.org).

If you did not register for the Reception, you can [sign up and pay for the March 9 Mixer here](#).

The Loews Annapolis Hotel is at 126 West Street; zip code is 21401.

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## Next Up in the CETI Cyber Security and Smart Grid Forum Series: Business Opportunities, on Tuesday, March 8



The

Maryland Clean Energy Center's Clean Energy Technology Incubator (CETI) is helping to ensure the smart grid applications will effectively safeguard the nation's long-term energy supply by guarding against hackers.

The next event in a series of forums is a meeting Tuesday, March 8 at CETI's Research & Technology Park South facility to discuss smart grid/cyber security business opportunities for Maryland entrepreneurs. The Technology Park South facility is at 1450 South Rolling Road, Baltimore, 21227. This forum begins at 4 p.m. in the Courtyard Room on the second floor. Please be sure to RSVP by emailing [bjorn.frogner@umbc.edu](mailto:bjorn.frogner@umbc.edu) by Friday, March 4.

The series of forums thus far has brought utility companies together with government IT specialists and their contractors. "Energy utilities need to think outside their compliance-only mode and work with cyber security experts to help protect the power grid," said Dr. Bjorn Frogner, Entrepreneur in Residence at CETI, where he is helping explore practical options for more effective cooperation.

Organizations involved thus far include U.S. Department of Energy and the National Institutes of Standards and Technology (NIST) along with companies such as Boeing, Neustar and Open Secure Energy Control Systems. Together they are defining the over-arching security threat and its implications.

"I am looking for companies who want to start businesses in this arena and who are looking for professionals with whom to network," Frogner said. "I will provide my perspectives on the business opportunities, how I think this market will evolve, and identify where there are opportunities."

## Many Challenges but Plentiful Opportunities Face Biofuels Companies in MD



Trailblazers in the biomass and biofuels sector gathered at bwtech@UMBC's Research and Technology Park earlier this month to probe Maryland's potential to build a thriving biofuels industry, cut its dependence on fossil fuels and benefit the Chesapeake Bay in the process. Biofuels experts from business, academia and government also explored the policies and incentives that will be needed to drive growth in this burgeoning sector of the clean energy economy.

"Keys to Success in the U.S. Biomass and Biofuels Industries While Protecting Chesapeake Bay" was a half-day forum organized by the Maryland-Asia Environmental Partnership (MD-AEP) and the Maryland Clean Energy Center (MCEC) as part of the organizations' Energy and Environment Leadership Series.

Carol Collins – a member of the Board of Directors of the Maryland Clean Energy Center and President of Spiralcat of Maryland, a manufacturing research and product development company specializing in waste water, biofuel and biobased chemicals -- described the state's enormous potential to generate biomass and biofuel and use those products to power facilities, replace fossil fuels and dramatically grow Maryland's economy and job base.

"A home, a business, a family farm, a large animal production operation, a municipality, an engine, a boiler, a landfill, a district heating facility, a waste water treatment facility, a college, a university, a co-generation facility are all suitable candidates to operate a biofuel supply turbine. There is so

much infrastructure that could be a biofuel-driven project in Maryland that would create so many jobs, so much revenue and turn the economy around," Collins said.

Biomass and biofuels represent the most job-intensive sector of the clean energy economy, said Jean-Paul Crouzoulon, Senior Vice President of Renewables with Areva North America. Areva operates major biomass/biofuels projects in Europe, Brazil and Asia-Pacific. Two years ago, it partnered with Duke Energy to create Adage, a U.S.-based biomass firm.

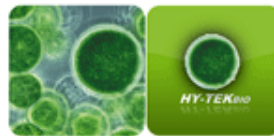
Maryland, possesses ample resources, technology and expertise to develop a robust biomass/biofuels industry, forum speakers agreed.

"Agriculture and forestry industry waste products are available in Maryland to provide energy from biomass to energy technologies. The Chesapeake Bay watershed could benefit from removal of some of these waste streams from the watershed and at the same time can be economically advantageous," said I. Katherine Magruder, Executive Director the Maryland Clean Energy Center.

"Many of the necessary economic incentives are in place in our state to enable project success. Facilitating coordination between stakeholders, regulators, and investors to get a project on the ground is another challenge altogether."

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## **HY-TEK Bio Technology Could Help Scrub Emissions from Coal-fired Power Plants**



HY-TEK Bio and the City of Baltimore are about to embark on a \$450,000 pilot project that will use algae to clean emissions from a methane-fired power plant while also producing feed stock for biofuel.

An early stage company based in Dayton, Md., HY-TEK has spent the last three years conducting "stealth research and development" to devise a patent-pending process to remove carbon dioxide and other greenhouse gases from smoke stack flue gas.

HY-TEK scrubs the gas by funneling it into a sealed bioreactor that contains algae, waste water and LED lights. The algae feeds on pollutants in the waste water and flue gas, yielding cleaner water and cleaner emissions. The process also produces large amounts of high-lipid-oil algae – a key ingredient in some skin care products, nutritional supplements, medications, paints, bio-plastics and biofuel.

HY-TEK Bio President and Chief Executive Officer Robert Mroz said he struggled to tap funding and testing opportunities until he began working with the Maryland Clean Energy Center.

HY-TEK will begin demonstrating its technology this summer at Baltimore's Back River Waste Water Treatment Plant.

In addition to the water plant, the site contains a 3-megawatt generator, which turns methane emitted by the waste water into electricity. Burning methane generates large amounts of carbon dioxide. The HY-TEK installation, however, will do more than reduce Back River's carbon impact. The city plans to use some of the algae generated onsite to produce biofuel for the city's fleet of vehicles.

The city granted HY-TEK \$250,000 in American Recovery and Reinvestment Act funds for the project. HY-TEK will cover the remaining \$200,000 in expenses.

HY-TEK Bio's technology is also about to undergo extensive testing at the University of Maryland Center for Environmental Sciences. Partly funded by a \$90,000 Maryland Industrial Partnerships (MIPs) grant, independent scientists will collaborate with HY-TEK Bio personnel to retest the company's processes and equipment and verify results.

Those tests are key to commercializing HY-TEK Bio's technology, said Robert Mroz, the company's president and chief executive officer. The test also are key to applying the technology to helping clean emissions from traditional, coal-fired, power plants. After spending more than 5,000 hours investigating algal systems, HY-TEK personnel recently achieved several

technological advances that make the company's system highly effective, green and financially attractive, Mroz said.

HY-TEK, he explained, greatly boosted algae production and greenhouse gas mitigation inside the bioreactors by 'feeding' the algae nutrient-rich waste water, improving the mixing process and installing an LED system that optimizes growth by generating only red and blue light.

At the same time, it dramatically cut the cost of the system by partnering with Annapolis-based Quantum Sails and designing bioreactors made from high-performance sail cloth – a relatively cheap alternative to standard reactors that are made of stainless steel.

HY-TEK currently employs eight people. Mroz said this technology could spur major job creation in Maryland and beyond.

For example, the coal industry alone supports 600 coal-fired power plants in the U.S. Cleaning the emissions of a single, mid-sized coal plant which can generate 14,000 tons of carbon dioxide a day, would require about 1,000 HY-TEK Bio reactors.

If HY-TEK Bio lands contracts to serve coal-fired plants or other power plants and manufacturing facilities, the endeavor could generate large numbers of jobs for "manufacturers, construction workers, truckers, engineers, scientists, microbiologists," Mroz said. "We are going to need them all to get these plants up and running."

The technology, he added, carries the added benefit of generating large amounts high-lipid-oil algae, which can be sold to manufacturers of biofuels, cosmetics and other products.

Those advances, Mroz said, could provide power plants, waste water treatment plants, manufacturers and other industries with a cheap, effective, green alternative to current carbon dioxide scrubbers, which can cost \$450-900 million.

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## Maryland Creating Clean Energy Jobs, Making Progress Toward Efficiency Goals



Three years into the EmPOWER Maryland program, the state is making progress toward its goals to reduce energy use and ranking as one of the best places in America for clean energy sector jobs and business opportunities.

During a presentation to the House Economic Matters Committee, Maryland Energy Administration Director Malcolm Woolf reported illustrative milestones that clean energy and efficiency programs have achieved:

- By the end of 2010, solar energy production in the state had grown 140 times over 2006 levels.
- In 2010, Maryland homeowners installed a record number of renewable energy systems. The MEA awarded more than 1,450 grants to residents for solar, wind and geothermal systems. Together, those installations cut household energy bills by \$1.2 million.
- In 2010, the MEA invested \$5.3 million in eight innovative green companies, created an estimated 130 permanent, full-time jobs and 230 temporary, construction jobs through 2012.
- Maryland signed "Clean Horizon" agreements to purchase 72 megawatts of renewable power.

The state, he said, also facilitated major energy efficiency gains through a variety of programs and incentives:

- The state's appliance rebate program exceeded expectations, helping more than 30,000 Marylanders install energy-efficient appliances
- More than 1,000 low-income apartments received energy makeovers
- More than 1,000 Marylanders received training for new careers in energy efficiency
- And the state awarded 132 grants to cities and towns to complete energy efficiency improvements

In total last year, Maryland dropped its overall, per capita energy use 4 percent below 2007 levels.



That reduction of 2.7 million megawatt hours represents enough energy to power 200,000 homes. The state dropped its peak energy use 3 percent below 2007 peak levels. That 600-megawatt savings equals the total output of three peaking power plants.

Both the overall conservation and peak conservation numbers exceeded EmPOWER Maryland's interim goals. EmPOWER Maryland's eventual goal is to reduce per capita electricity use 15 percent by 2015.

Those initiatives also made Maryland an excellent location for growth and job creation in the clean energy economy, Woolf said.

In a report entitled "[Efficiency Works: Creating good jobs and new markets through energy efficiency](#)," The Center for American Progress last autumn ranked Maryland as the third best energy efficiency market in the country. The report praised the state for the EmPOWER Maryland plan, its Renewable Portfolio Standard noncompliance penalties, its Commercial and Industrial Energy Efficiency Loan Fund and other assistance programs.

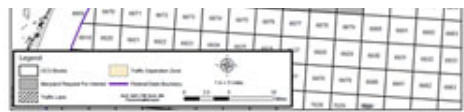
Governor Martin O'Malley's energy agenda, the report concluded, "focused on promoting green jobs and sustainability, increasing renewable energy production and providing tax credits to families. This strong momentum forward on several fronts during the past few years provides an excellent policy framework for Maryland to achieve its energy efficiency goals."

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### Leasing Process, O'Malley Bill Advance Offshore Wind Development in MD



Formal expressions of interest from eight companies eyeing wind power projects off Maryland's coast are fuelling optimism that the state will be a major player in the offshore wind sweepstakes.



 **Maryland Offshore Wind Tracts PDF**

The Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE), a division of the U.S. Department of the Interior, invited wind developers to file expressions of interest in wind

power lease sites in a 207-nautical-square-mile area offshore Ocean City. The filings which were due in January, were part of BOEMRE's effort to streamline the leasing process and kick-start the state's industry.

Industry experts were encouraged to see a robust response to that call, including expressions of interest from several foreign companies – a sign that European leaders in offshore wind energy are finally regarding Maryland as a promising market. Companies who expressed interest in developing wind power off Maryland's coast, included NRG Bluewater Wind, Energy Management, Inc., Fishermen's Energy of New Jersey, Seawind Renewable Energy Corp., Apex Wind Energy and Beowulf Energy, LLC.

"The federal process has confirmed that there is robust, competitive private sector interest in developing Maryland's outstanding offshore wind resources," said Malcolm Woolf, director of the Maryland Energy Administration. "We are confident that the competitive leasing process will result in one or more Maryland offshore wind farms, which will create thousands of jobs and generate much-needed clean electricity for our region."

Jim Lanard, president of the Offshore Wind Development Coalition, said federal and state authorities still need to forge new processes to jointly decide which companies and leasing agreements to approve. The state, he added, must also put processes in place that will enable developers to secure financing for offshore wind facilities.

Lanard added, however, that Governor Martin O'Malley's Maryland [Offshore Wind Act 2011](#) which was filed with the General Assembly earlier this month, represents a good start to building the regulatory and financial footings for offshore wind development. The bill would require Maryland utilities to enter 20-year agreements to purchase 400-600 megawatts of offshore wind power. It would also rewrite Maryland conservation laws to allow offshore wind companies to run transmission lines to shore.

If the legislature passes the bill, "all the conditions will be right to create a new industry that just doesn't exist here yet," Lanard said.

That industry, he added, could provide Maryland with 500 megawatts of clean energy, 2,000 manufacturing jobs and 400 permanent jobs.

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## **RGGI Yielding Environmental Benefits, but Diminished Funds for Clean Energy Programs**

Some onlookers call it the paradox of the Regional Greenhouse Gas Initiative (RGGI).

A little over two years old, North America's first cap-and-trade market for carbon dioxide emissions allowances is functioning smoothly. [RGGI](#), Inc. has successfully completed 10 auctions, established a monitoring system for all regulated power plants, funneled millions of dollars into energy efficiency and clean energy programs, and, most importantly, watched carbon dioxide emissions drop across RGGI's 10 participating states.



The paradox is that improvements in the region's carbon footprint have been accompanied by a decline in funds raised by RGGI auctions. Proceeds peaked in Fiscal 2009 with a single auction bringing in \$20 million and carbon dioxide allowances selling for more than \$3 apiece. RGGI's latest auction in late 2010 raised \$8 million and sold allowances for the floor price of \$1.86.

Jonathan Schrag, executive director of RGGI, Inc., said those financial returns have been

influenced by multiple factors. The recession curtailed industrial operations and other activities across the region, depressing the need for electricity. Changing fuel prices increased use of natural gas, which has a lower carbon impact. Heightened investments by businesses and governments in clean energy and energy efficiency further lowered use of fossil fuels. RGGI alone funneled \$790 million to 10 states and about half of that total went into energy efficiency and clean energy initiatives.

Overall, RGGI saw total carbon dioxide emissions across its 10 states drop from 180 million short tons in 2008 to 135 million in 2010.

Lowered auction prices, Schrag said, "simply reflect supply and demand, and that's the whole point of setting up a market. The whole point of a market-based program is to provide the incentive and the flexibility to allow businesses to make their own strategies to reduce their carbon dioxide emissions whether they make efficiency investments, change their operations or purchase allowances. The point of the program is not to cause high prices. The point of the program is to reduce emissions. And that is happening."

Maryland has received more than \$147 million from RGGI since its inception, said Dawn Stoltzfus, a spokesperson for Maryland's Department of the Environment (MDE) and the RGGI program in Maryland. That income, she said, has enabled the state to direct additional funds into energy efficiency and clean energy programs, such as the Maryland Energy Administration's (MEA) Strategic Energy Investment Fund.

Diminishing proceeds from RGGI auctions, however, have resulted in less funding for Maryland programs.

In Fiscal 2011, state officials expect to direct \$6 million of RGGI funds into MEA programs, \$1 million into MDE climate programs, about \$590,000 into weatherization services for low-income residents, \$279,000 into an excise tax incentive for electric vehicles, \$9 million into Public Service Commission rate relief and \$23 million into helping low-income Marylanders pay their energy bills.

"RGGI has produced good outcomes for climate change," said Dana Stein, a Democratic delegate representing Baltimore County and a member of the House of Delegates' Environmental Matters Committee.

RGGI has enabled Maryland to boost funding to clean energy and energy efficiency programs, but ultimately the program has delivered less revenue to the state than expected, Stein said.

RGGI states, he suggested, might want to consider amending the program. The region is already falling more than 50 million tons below its maximum annual carbon dioxide emissions target for 2014. Consequently, RGGI states might consider either lowering that target or expanding the program to include some CO2-producing industries as well as power plants.

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### **Auto show spotlights new and upcoming EV and hybrid options**

This winter's Washington Auto Show provided glimpses into the emerging electric vehicle market, even if U.S. automakers and dealers are not yet providing widespread opportunities for Marylanders and others to switch to these cleaner, more energy efficient vehicles.

The sprawling show at that Walter E. Washington Convention Center included the two mass market EVs that are just beginning to reach American car showrooms: the Chevy Volt (pictured) and the Nissan Leaf.

Priced at \$40,000, the 2011 Chevrolet Volt is outfitted with a 16-kWh lithium ion battery pack that charges in 4-10 hours and gives the electric motor a range of 35 miles. Chevrolet estimates an average gas-free daily commute in a Volt would cost about \$1.50. Like current hybrids, the Volt is also outfitted with a gasoline



engine, which extends the  
vehicle's range to 337 miles. A

limited number of Volts are available in six markets, including the Baltimore / Washington metroplex. General Motors has announced that it will make the model available in all 50 states by the end of 2011.

*Above: Chevrolet Volt; below: Nissan Leaf. Photos by Maryland Clean Energy Center.*



Priced around \$33,000, the Nissan Leaf is a 100 percent electric car with a 24-kWh lithium ion battery, a range of 100 miles and zero tailpipe emissions. In fact, it doesn't have a tailpipe. Nissan manufactured just 20,000 Leafs this model year and all of those vehicles have been promised to customers who signed up on the Leaf waiting list. Nissan, however, recently

announced plans to increase production to 150,000 vehicles in 2012 and will soon open a waiting list for those automobiles.

Both the Volt and the Leaf qualify for a \$7,500 federal tax rebate.

Marylanders interested in [test-driving the Nissan Leaf](#) can do so from Friday, March 18 through Sunday, March 20 if they sign up quickly during a Nissan event at the National Harbor just south of the Woodrow Wilson Bridge along the Potomac River.

For a report on what is believed to be the region's first purchaser of the Volt – Randy Schilling of Catonsville – see this post on the [B'More Green blog](#) by the Baltimore Sun.

[Click here](#) for an article by the Gazette newspapers on the region's first user of the "smartfortwo" EV, Mindy Kimball of Silver Spring.

The auto show's Advanced Technology Superhighway pavilion featured a range of EV and alternative-fuel technologies – some that are commercially available, some that are still in development. They included:

- A do-it-yourself photovoltaic conversion kit for the Toyota Prius. Priced at \$3,000, the kit includes solar panels to cover the roof and part of the car's bonnet, plus additional battery capacity. Developers of the kit say it boosts the Prius' fuel economy from 50 mpg to 100 mpg, saving the average driver \$450 in fuel costs annually.
- The 2011 Smartfortwo electric vehicle. With a range of 84-98 miles depending on driving conditions, the two-seater car achieves the equivalent of 87 mpg and costs about \$644 annually in electricity.
- Honda's FCX Clarity fuel cell electric vehicle. The world's only hydrogen-powered fuel cell EV, the Clarity achieves the equivalent of 60 mpg, has a range of 240 miles and ranks as three times more efficient than a gasoline-powered car and twice as efficient as a hybrid. Its tailpipe emissions contain only water vapor.
- The Edison 2 Very Light Car. The winner of the Automotive X Prize, the test vehicle is not only extremely light at 830 lbs but has the lowest aerodynamic drag of any four-passenger vehicle ever tested at the GM Wind Tunnel. Edison 2 is currently developing a roomier version for the consumer market.

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**[U. of Maryland plans solar purchases over 20 years from Washington Gas Energy Services system](#)**



The University of Maryland College Park is on track to turn on one of the largest rooftop solar power systems in the state by this summer.

Assisted by a Maryland Energy Administration Sunburst Initiative grant, the university plans to install more than 2,600 solar panels atop a multi-purpose building in Severn, which is less than a mile from UMD's campus on Greenbelt Road.

The 631-kilowatt system which will be installed by Rockville-based Standard Solar, Inc., is expected to produce 792 megawatt hours of electricity each year. That production of clean energy should reduce UMD's carbon footprint by more than 600 tons per year – the equivalent of eliminating greenhouse gas emissions from 64,000 gallons of gasoline annually.

Washington Gas Energy Services will own and operate the system. The University of Maryland will purchase electricity generated by the panels under a 20-year contract.

Washington Gas and Standard Solar expect to have the system installed and operational during the second quarter of 2011.

"The university is committed to addressing the significant challenges of this generation, including environmental sustainability, climate change and renewable energy," said Ann Wylie, Vice President of Administrative Affairs and Chair of the University Sustainability Council. "The use of solar energy – a clean energy source that produces no greenhouse gases – will move us another step closer to achieving our vision for a greener campus embodied in the university's strategic plan."

The university is striving to become "widely recognized as a national model for a green university." In 2007, the university signed the American College and University Presidents' Climate



Commitment, a plan to make academic institutions carbon neutral. Last year, the university began building a 2.1-megawatt "solar farm" at the University of Maryland Eastern Shore.

Malcolm Woolf, Director of the Maryland Energy Administration, said UMD is doing more than achieving its own green goals. "By investing in renewable energy resources, UMD is helping Maryland achieve its Renewable Portfolio Standard goal of acquiring 20 percent of its energy from renewable sources by 2022."

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## **Maryland's SREC Values Adjusting to Changing Market Conditions – a Guest Perspective**

**By Fred Ughast**

*Ughast is the founder of U.S. Photovoltaics in Frederick, MD. He brokers SRECS for various parties.*

Maryland has made significant progress toward its goal of generating 2% of the state's electricity from solar by 2022. Critical to the state's success thus far – and even more important to meet this aggressive target —has been a strong market for Solar Renewable Energy Credits (SRECs) in the state.

Energy Year	RPS Solar Requirement	Projected SRECs Required (MWh)	Projected Capacity Required (MW)	SACP
2009	0.01%	6,700	6	\$400
2010	0.03%	17,000	15	\$400
2011	0.05%	34,000	30	\$400
2012	0.10%	70,000	60	\$400
2013	0.20%	140,000	120	\$400
2014	0.30%	220,000	180	\$400
2015	0.40%	295,000	245	\$350
2016	0.50%	375,000	315	\$350
2017	0.55%	420,000	350	\$200
2018	0.90%	695,000	580	\$200
2019	1.20%	940,000	780	\$150
2020	1.50%	1,190,000	990	\$150
2021	1.85%	1,490,000	1,240	\$100
2022	2.00%	1,635,000	1,360	\$100
2023	2.00%	1,650,000	1,380	\$50

Each SREC represents the "green" value of producing electricity from a non-polluting solar source and is separate from the value of the electricity itself. Solar electric facilities in the state can be certified to earn an SREC for each 1 Megawatt-hour of solar electricity produced.

2011 may represent a challenging year for the SREC market because a large number of systems have recently been certified that are not physically located in Maryland. After January 1, 2012 only in-state systems are eligible to earn SRECs for RPS-compliance but the market is seeing pricing pressure from what could be an excess supply for the current year.

Since 2008 more than 1,000 solar systems have been certified by the Public Service Commission

as Renewable Energy Facilities in Maryland. From a few hundred kilowatts of solar capacity prior to enactment of the solar carve-out to our Renewable Portfolio Standards (RPS) in 2007, we have grown to nearly 14 Megawatts of in-state capacity registered in the Generator Attribute Tracking System (GATS) by January 2011. On a full-year production basis our solar capacity matches our RPS requirements almost perfectly.

Although only 22 in-state facilities are larger than 100 kilowatts (kW), they account for more than half of the state's total solar capacity. The 1,013 residential-scale systems (under 10 kW AC) account for a total of just under 5 megawatts (MW) of capacity.

In Maryland, for every 5 kW of solar capacity a system will earn 6 SRECs per year on average. SRECs are intended to be a market-based incentive with their prices primarily influenced by the ratio of supply to demand with the demand being established by the RPS and the supply by the total eligible solar generation registered in GATS.

*The ability to earn and sell SRECs is often the most important determinant in how long it will take an investment in a solar PV system to pay for itself.*

Most of 2010 supply of SRECS was substantially below demand and SREC pricing on the spot market was very close to the theoretical maximum value represented by the Alternative Compliance Payment (ACP). The ACP is what electric suppliers and other RPS-obligated parties are required to pay if they did purchase enough SRECs to meet their obligations.

The ACP is set at \$400 per MWh (or SREC) through 2014 and spot transactions of \$360-\$380 were common for most of 2010.

In addition to the spot market, individual system owners often sell their SRECs under term contracts of 3-5 years, thereby trading some of the risk inherent in the volatility of the spot market for a firm price from the buyer. Some system owners eliminate their risk entirely by selling all of their SRECs for 7, 10 or 15 years in exchange for an advance payment representing a discounted value of the SRECs that will be earned over the term. Auctions and exchanges are also available and represent emerging platforms that over time should add a degree of transparency to both pricing and volumes that are critical to a maturing market.

Even if Maryland's SREC market experiences more volatility in 2011 than it has in recent years, it should continue to support a growing base of solar systems in the state as clean energy industries attempt to meet our aggressive RPS targets over the next 10 years.

Challenges remain and Maryland may need to take steps in the next few years to ensure that it meets its targets while maintaining a healthy balance of new utility, commercial and residential-scale solar system.

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