



MARYLAND

CLEAN ENERGY CENTER

ANNUAL REPORT FY 2011



October 1, 2011



MCEC 2011 Annual Report

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Executive Director

I. Katherine Magruder

Message from the Chairman



Over this past fiscal year the Maryland Clean Energy Center has been working to heighten awareness, foster dialogue and facilitate partnerships to deliver on a mission very broad in scope. MCEC leadership is keenly aware of the fiscal challenges that create a competitive environment for any commitment of public funding in these economic times and is dedicated to implementing strategies that will allow for sustainability from private sources of funding.

MCEC put programs in place this year to help consumers, support local communities, and encourage businesses to succeed with efforts to save energy, increase renewable generation, and create jobs- all aligned with Governor O' Malley's energy goals.

In the year ahead, Maryland Clean Energy Center will continue its work in innovative financing of energy efficiency for residential (MHELP) and institutional clients, filling a market-void with private sector capital solutions. We will continue to reach out to the consumer public to demystify energy consumption options and we will work to convene the industry sector to influence policy decisions that we better enable Maryland to be a leading state in the clean tech economy.

Sincerely,

A handwritten signature in dark ink, consisting of several overlapping, stylized loops and a long horizontal stroke extending to the right.

Jeff Eckel
Chairman of the Board

Message from the Executive Director



Throughout the second full year of operation, MCEC has become established as a go-to resource in Maryland promoting clean energy across the state by providing assistance to: businesses in creating new green jobs, consumers in making clean energy choices, investors in developing innovative solutions and legislators in determining public policy.

This report covers activity for fiscal year 2011, a period from July 1, 2010 to June 30, 2011. During that time frame there were transitions in leadership, in board composition, and in staffing that helped stabilize the management foundation.

During this period MCEC was awarded funding to expand Outreach and Education activities and provide Local Funding Assistance awards for projects that would install renewable power generation and/or reduce energy consumption and cost. Projects funded across the state are shining model examples of what is possible and could be replicated by other communities.

The Maryland Clean Energy Loan Program (MHLEP) was launched in this term and is helping residential property owners obtain energy audits and finance necessary improvements to reduce their power bills and make their homes more comfortable while reducing their carbon footprint and supporting jobs. All positive impacts!

MCEC held the first of what is intended to be an annual event with the Maryland Clean Energy Summit 2010, focused on the theme of "*energy+environment+economy=climate change*". The event brought together thought leaders from industry, academia and government to consider how Maryland could learn from best practices and work more effectively to profit from the clean energy economy in the future. Based on the success of the Summit 2010, the first plans for Summit 2011 began shortly thereafter!

Utilizing the Clean Energy Technology Incubator network and support from partners, MCEC began to see results from efforts to identify research & development and to support entrepreneurial activity. This report highlights some success stories from MCEC efforts to support business development.

MCEC successfully convened this growing industry sector in Annapolis during the General Assembly session and worked with partners to review and comment on proposed legislation with support for bills that would grow business, create jobs, reduce carbon footprint, and encourage installation of renewable generation and energy efficiency impacts.

Looking forward to FY' 2012 MCEC intends to continue these kinds of activities.

Best regards,

A handwritten signature in black ink that reads "I. Katherine Magruder".

I. Katherine Magruder
Executive Director

Overview of FY '12: "Striving for Sustainability"

The Maryland Clean Energy Center (MCEC) functions as a corporate instrumentality of the State of Maryland working toward the following statute directed purposes:

- Promote Economic Development and jobs in the clean energy industry sector in the state;
- Promote the deployment of clean energy technology in the state;
- Serve as an incubator for the development of clean energy industry in the state;
- Collect, analyze and disseminate industry data; and
- Provide outreach and technical support to further the clean energy industry in the state.

The MCEC work plan is focused on helping consumers, supporting businesses, and informing policy makers.

Projects and programs involve:

- increasing access to capital for investment in the sector,
- initiating outreach and education to increase adoption of renewable energy technologies and energy efficiency practices,
- fostering effective business relationships and providing technical support for commercialization of energy related research & development,
- advancing public policy to insure a conducive environment for industry success.

Striving for sustainability was a key theme for MCEC in FY'11 at both macro and micro levels. The Board of Directors recognizes the important role MCEC can play in helping address the energy goals of the State as part of the effort to advance environmental, economic and community sustainability. During FY '11, MCEC operated primarily with carry over funds through grants awarded in FY'10. However, the sustainability of the organization itself became and remains a priority concern for leadership as it has proven a challenge to obtain and maintain funding from public sources.

Access to Capital

MARYLAND HOME ENERGY LOAN PROGRAM (MHELP)

Launched Jan 2011, after a year of effort to put appropriate legal and financial support in place, this phase one MHLEP Program began making direct loans to consumers with a pool of \$500,000 in ARRA

funds. MCEC held numerous meetings with energy efficiency contractors to invite participation and provide clarity on requirements for eligibility in MHELP. Contractors must have Maryland Home Performance with Energy Star certification and be approved by the lender, which insures that consumers will be getting reliable delivery from a qualified service provider.



MCEC engaged AFC First to coordinate the direct lending program activity and provide related administrative support including loan review and approval. Loan terms are as follows: 6.99% rate, credit score of 650 or better, loan limits between \$2,500 and \$20,000, unsecured, up to a ten year amortization period.

As of 10/3/11, 38 loans totaling \$293,690 have been funded with an additional \$103,851 in transactions pending for total loan activity with AFC First of \$397,541. The contract with this vendor expires on November 1, 2011 and any uncommitted funds remaining will roll into the loan loss reserve program described below.

Partnerships with Lending Institutions to Leverage Funds

In phase two, MCEC solicited proposals from private funding partners to utilize the remaining ARRA funding in a loan loss reserve program. The loan loss reserve allows MHELP to leverage \$1.5 million in public sector funds into potentially \$15 million for loans using the private lender's capital. Lender interest rates are bought down from market rates of 15% to low as 6.99% or 9.99% to make loans more attractive to consumers and help stimulate business for contractors. Mariner Finance was the first lender to express interest in the loan loss reserve program and, to date, has approved 11 of the first 13 applications they received.

"MHELP is already responsible for our company not having to lay off employees for the winter season. And, we are just getting started with it! To me, it's all about jobs."

*Michael Giangrandi,
President
A.J. Michaels Company*

This model for energy efficiency lending is the first to be implemented with ARRA funding in the country, and MCEC hopes to engage additional lending partners for an even greater increase in available funding. Lending terms were also modified in the phase two program to allow consumers to borrow for equipment retrofits without an energy audit but at a higher interest rate of 9.99%



Administration of MHELP activity is handled by the Loan Program Manager at MCEC, a position funded by ARRA grant monies that run out in March of 2012. There are currently proposals under consideration by the PSC to redirect some of the utility managed EMPOWER funds for energy efficiency to support MHELP. The additional loan loss reserve, rate buy down and administration is an idea that MCEC endorses.

LOCAL FUNDING ASSISTANCE AWARDS

Using grant funds awarded by the General Assembly, MCEC implemented a round of funding awards to county and municipal partners. Funds were awarded following an RFP process and review of proposals to determine capacity for renewable power generation, energy efficiency savings, public visibility, and leverage of public to private investment, as well as any potential return on investment to MCEC.

The completed projects to date have resulted in 30 kW of generation, approximately 600,000 of saved kWh and \$57,000 in costs saved. MCEC believes that this kind of direct investment is positive because these applications are high profile and impactful. Some project developers have also agreed to provide a financial return to MCEC that can be used in future projects. Should additional funding be made available in the future, MCEC would like to continue this program on an ongoing basis. Out of 21 applications received, the following project awards were made:



CITY OF FREDERICK/ Nexus New Energy Homes **\$70,000**

Nexus has created a unique partnership with the local housing authority to build affordable new net zero energy homes within the city. The cutting edge design of these dwellings will advance energy efficient and renewable generation technologies, and create hundreds of jobs in the building trade and construction sectors as the project is completed. Funds will be used to purchase equipment and materials and to help satisfy minimum equity requirements and leverage additional private sector investment.

BALTIMORE COUNTY/ Amidus **\$73,100**

A 9 kW solar photovoltaic electric system will be installed to generate power for the facility and a touch-screen monitoring display will be installed in the lobby of the Clean Energy Technology Incubator at the University of Maryland – Baltimore County. Management, tenants and visitors to the facility will be able to view real time measures of this renewable power generation technology at work. MCEC will be able to recycle some of the funding provided with this solar project through the sale of SRECs providing a return on investment.

CHARLES COUNTY/ Crain Memorial Welcome Center **\$50,000**

County leaders are installing a 20 kilowatt wind energy generating system at the Welcome Center and ultimately envision the project as part of a Renewable Energy Education Center to be established in the future at the site in Charles County.

CECIL COUNTY/ Fair Hill Nature Center **\$48,000**

Funds will cover costs of installing a geothermal energy system to increase heating, ventilation and cooling efficiency at this non-profit environmental education center.

TOWN of EASTON/ Traffic Signals

\$16,058

Drivers may not notice but the town will certainly see the savings from retrofits of traffic signals with LED (light-emitting diode) bulbs. Changing out the old to the new bulbs is estimated to reduce demand for energy by 88,334 kilowatt hours and \$8833 per year.

TOWN OF RIVERDALE PARK/ Town Hall and Public Works Building

\$30,000

Staff look forward to a more comfortable work environment in the months ahead as a result of this funding that will allow for upgrades to heating, ventilation and cooling system in the town offices.

CITY OF HAGERSTOWN/ Public Garage Lighting

\$69,000

Over 151,000 kilowatt hours of electricity generation won't be needed anymore and the town anticipates saving over \$15,000 per year in energy costs by replacing 92 metal halide lights with new LED fixtures in the Hagerstown public parking garage.



CITY OF BALTIMORE/ SavWatt

\$26,000

Funds will be used for the installation of an "Eco Pole", which utilizes energy efficient LED lighting combined with wind and solar power generation, on the roof of the Maryland Science Center in the Inner Harbor. An education component is included in this project that calls for an integrated monitoring system to be visibly placed in a main floor kiosk by Baltimore based manufacturing company, SavWatt.

CITY OF FROSTBURG/ Hydro Electric Power Generation

\$50,000

The city plans to utilize these funds in part to purchase equipment and install a low head hydroelectric plant allowing for recovery of energy costs associated with pumping raw water up the west face of Big Savage Mountain from sources in Garrett County. Estimated to reduce power demand by 240,768 kilowatt hours per year along with the associated costs, the project allows the City to keep public water operations supplied with locally-generated energy in the event of problems with the electrical grid.

HOWARD COUNTY/ Morningside Senior Living Community Lighting Retrofit

\$11,121

The Howard County Housing Authority will use these funds to replace current lighting in their senior living facility with more efficient high performance units and CFLs. The project is estimated to generate energy savings exceeding 37,000 kilowatts per year and save over \$7,500 in energy costs.

PRINCE GEORGE’S COUNTY/ Town of Edmonston Town Hall Solar Installation

\$18,000

Town leaders want to stabilize energy costs and insure reliability with installation of a 2 kW solar photovoltaic system on the Town Hall. Funding will help cover the costs associated with purchasing the panels.

CITY OF SALISBURY/ Fire Department Lighting Retrofit

\$24,812



Funds will be used to facilitate a lighting retrofit to the oldest fire station in the town, built in 1930. Fire Chief Simpson said the project entails, “replacing 69 fixtures with CFLs and installing 4 supporting cord reels in the ceiling infrastructure both in the apparatus bay and living quarters.” This effort will not only result in

cost savings estimated to exceed \$6,000 annually, it will also improve lighting and safety for employees.



Outreach & Education

Since inception, MCEC has earned recognition as an independent broker and a go-to resource for information. The center hosted the first of what will be annual conference events in FY'11, designed to convene industry leaders, policy makers and representatives from NGOs to learn about best practices, as well as potential recommendations for proposed policy. MCEC responds to requests for information and assistance on a regular basis directing inquirers to the best sources depending on the inquiry. In FY' 11, staff **responded to over 165 diverse inquiries**.



The Maryland Clean Energy Summit 2010 was held in October 2010, and was considered to be very successful for a first time event. The program provides opportunity for business-to-business, business-to-government, and business-to-consumer interaction. Over 275 attendees registered and over 70 exhibitors were present for the one day event.

The Summit 2011 was scheduled to take place in late August but was postponed until late October of 2011 due to damage to the host venue from an unusual earthquake that took place two days prior to the originally scheduled event. At the time of this report, 296 attendees were registered to attend the conference with 50 exhibitors committed to participate. The Summit is scheduled to take place over a three day period. The third day, Saturday, will be consumer-focused and offer free seminars.

WEBSITE & RESOURCE DATA BASE

MCEC maintains an informative website that serves as a directory for businesses, contractors and service providers, as well as an easy-to-access source of content. In FY'11 MCEC invested in several improvements to the site to make the experience more user-friendly and effective. New content was developed and added in early FY'12 on retail choice, success stories of related businesses and MCEC loans. **The site received 13,829 hits between 7/1/09 and 9/27/11. At this time, 461 companies are registered in the data base, up from the total of 450 in FY'10.**

NEWSLETTER - "The Current"

A monthly newsletter is produced and released covering timely and informative topics and events. **Subscribership almost doubled from 1000 in FY'10 to 1821 as of October 2011.** This outreach activity was funded by ARRA grant funds in FY'11, and is hoped to continue after FY'12 if funding is available.

EVENT ATTENDANCE, ADVERTISING & SPONSORSHIP

In FY' 11 MCEC sponsored and or attended events in the list that follows, reaching an audience exceeding 2000 in person and 80,000 through direct advertising. MCEC is particularly proud to have sponsored the student/faculty team that competed to win first place in the US DOE Solar Decathlon.

- Potomac Region Solar Energy Association- Homeowner Seminar
- Annual Conference Md. Delaware Virginia Solar Electric Industry Assoc.
- Friends of Frederick County Winter/ Spring Sustainability Film Series
- Charles County Green Symposium
- Solar Energy World Earth Day Event
- Bethesda Green "Greening Condos" Series
- Solar Wind Expo
- City of Frederick Energy Forum
- Rep. Bartlett "Go Green Expo"
- University of Maryland WaterShed
US DOE Solar Decathlon Entry



WaterShed team sponsors and members pose for a picture taken at a pre-construction event held in College Park.

Business Development

MCEC has successfully supported business development in the sector primarily by fostering connections and networking activity, as well as through the establishment of its Clean Energy Technology Incubator Network. Efforts this year have also been focused on facilitating access to capital by exercising the capability to issue bonds as a financing tool.

IMPLEMENT BONDING CAPABILITY

The MCEC enabling statute empowers the organization with the capability to issue tax exempt bonds for project development in the clean energy and energy efficiency space. Using this tool to enable projects that are advantageous to investors will foster related employment opportunities and may help sustain MCEC over time.

During FY' 11 the Board of Directors took all the necessary formal steps to launch such activity, and engaged bond counsel in early FY'12. The Board intends to utilize revenue generated from this activity as a sustainable funding source for MCEC operations in the future.



CLEAN ENERGY TECHNOLOGY INCUBATOR (CETI) & INNOVATION NETWORK

CETI is an energy knowledge center that stimulates energy innovation in Maryland as part of Maryland's clean energy ecosystem where ideas related to clean energy are discussed, researched, and disseminated. Participants in these discussions are academics, entrepreneurs, policy makers, public, and other interested

parties. Topics of discussion center around technical research, policy, and market opportunities to stimulate research, create new companies, increase the awareness of energy issues, and enhance Maryland's reputation as a serious supporter of clean energy. CETI serves to:

- Be a resource center for Maryland's incubators.
- Be a "clearinghouse" for information about clean energy in Maryland.
- Perform "outreach" activities to share information.

MCEC partners with umbc@bwtech, located on the campus of UMBC in Catonsville, as a base of efforts to advance innovation and support start-up companies in the energy sector. A jointly funded entrepreneur-in-residence maintains offices at the South Rolling Road facility and is currently working part time to coordinate related activities and build out the network.

"The number of start-up energy companies has almost doubled in Maryland during the last 12 months."

*Bjorn Frogner
Entrepreneur-in-Residence
Maryland Clean Energy
Technology Incubator*

The network is developed through working relationships with researchers and companies that are tenants of the incubator or through formal and informal affiliation.

As of October 2011 there are 6 tenants and 10 affiliates with CETI, an increase from the end of 2010 when there were 5 tenants and 2 affiliates. An inventory of energy companies based in the 21 incubators in Maryland in October 2011 shows a total of 41 start-up energy companies, increased from 21 counted at this time last year.

Specific seminars sponsored to foster success and advance certain topics impacted over 500 attendees. CETI convenes experts on Cyber Security for the Smart Grid and coordinates visits with foreign business interests. **(See Appendix A: CETI FY'11 Events)**

With appropriate funding invested in this effort, MCEC believes even greater results could be achieved.

SUCCESS STORIES

Harness Industries, a newly formed company that recently joined the Clean Energy Technology Incubator (CETI) at the University of Maryland Baltimore County, will use renewable energy to enable owners of large parking lots to generate revenue on what has traditionally been unprofitable space.



Most parking lots constitute a major expense for companies. While imperative for a business to exist, non-commercial lots provide cost a great deal to build and maintain yet create no direct revenue for the companies whose employees and customers utilize them.

Harness Industries' signature product – OSPRES (Off-Street Parking Regaining Environmental Sustainability) – will change all that. OSPRES utilizes a canopy structure equipped with Solar PV and Solar Hot Water panels that stands over parking spaces. The solar power generated by OSPRES serves as a significant revenue source, as it can be sold to utilities that are required to offer a certain percentage of clean energy.

In addition to generating 100 percent renewable energy, OSPRES manages and mitigates storm water to further bolster its economic impact. The system, which is ideal for shopping centers, universities and large office complexes, is highly scalable in design. Each standard canopy unit covers eight parking spaces; however, because of its in-house manufacturing capabilities, Harness Industries is also able to customize installations.

By working with the Maryland Clean Energy Center, Harness Industries has been able to tap into a variety of resources across the state; the company's relationship with MCEC helped Harness Industries secure a place at UMBC's CETI, which company officials say has provided the company with the flexibility it needs to build its operations and customer base.

Harness was founded with the goal to provide innovative solutions to the utilities and communications industries.

Our Expertise can help integrate solutions in the following fields:

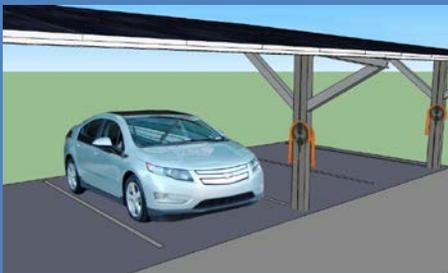
- Data Systems
- Solar Electricity Generation Development
- Wind Electricity Generation Development
- Renewable Energy and Backup Power Systems
- EV Infrastructure Development
- Advanced Battery Systems
- Sustainable Real Estate Development and Building Operations
- New and Retrofit Construction Management





The company already has completed several groundbreaking projects:

- The first EV solar charging station with integrated energy storage at a federal government facility – the U.S. Department of Veterans Affairs office in Martinsburg, West Virginia;
- The first commercially financed Smart Grid-compliant solar EV charging station at the General Motors/Allison Transmission headquarters in White Marsh, Maryland;
- Inclusion in the design of the first net-zero community in the nation – the Nexus Homes Community in Frederick, Maryland.



TimberRock Energy Solutions is making the promise of 100 percent “clean” electric vehicles (EVs) a reality. The Frederick-based company engineers customizable solar-powered EV charging stations that ensure the vehicles’ environmental benefits aren’t diminished by relying on electricity generated by coal or other “dirty” sources of energy.

As the EV market grows – various studies estimate there will be one million EVs on the road by 2015 – demand for TimberRock’s innovative products is rapidly increasing. TimberRock is developing multiple scalable designs that can be tailored for use in various residential or commercial settings. The highly cost-efficient systems enable owners to generate energy that reduces their traditional power consumption and utility bills. The stations also store surplus energy that provides various smart-grid benefits to utilities.

“The way we generate and use energy in the next 20 years will be very different from the way we did over the past 20 years,” said TimberRock Founder and CEO Brent Hollenbeck. “There is a strong demand for a changing infrastructure and we are meeting that demand.” Hollenbeck added that working with the Maryland Clean Energy Center has been key factor in its success and company growth. “MCEC has been instrumental in helping us develop a network of potential business partners and customers,” he said.



High-tech scientists and old school farmers have one thing in common -- the desire to increase agriculture's profit levels while minimizing its environmental impact.

Plant Sensory Systems, an agricultural biotech, has the potential to make farming far more lucrative by significantly reducing most farmers' largest expense: the cost of nitrogen-based fertilizer. Properly limiting that expense has environmental benefits as well -- the less fertilizer used, for example, the less that has the potential to find its way into various water sources via runoff.

Founders Frank and Kathleen Turano utilize their understanding of signaling pathways and their expertise in plant nutrient and stress sensory systems to enhance specific plant traits to optimize agricultural performance.

Technologies such as the NUE/Stress Tolerance technology increase crop yields by bolstering plants' response to the three most critical environmental factors: nitrogen availability, water availability and high temperatures. Plants with Plant Sensory Systems' NUE/Stress Tolerance technology produce greater-than-normal yields without the standard application of nitrogen-based fertilizer or water. Another key Plant Sensory Systems initiative is the company's Metabolic Regulator technology, a platform that has the ability to manage entire metabolic pathways and is readily transferable to any crop. The technology has been applied to increase seed oil content that will boost per-acre productivity and help meet the rapidly growing demand for biodiesel and food.

With the support of the Maryland Clean Energy Center (MCEC), Plant Sensory Systems has been able to advance its work of modifying plants on the molecular level so they require significantly less nitrogen to produce comparable yields. MCEC is supporting Plant Sensory Systems' revolutionary work by introducing the company to potential sources of funding and a wide range of possible business partners.



With the support of the Maryland Clean Energy Center (MCEC), Plant Sensory Systems has been able to advance its work of modifying plants on the molecular level so they require significantly less nitrogen to produce comparable yields. MCEC is supporting Plant Sensory Systems' revolutionary work by introducing the company to potential sources of funding and a wide range of possible business partners.

Advocacy

In an effort to insure the state offers a policy and regulatory environment conducive for successful advancement and job creation in this emerging sector, MCEC provides resource information and has been engaged in legislative activity on the state and local levels. With a neutral agenda as specified in its mission, MCEC has a unique ability to convene and represent relevant stakeholders and plays a valuable role in the policy making and implementation process. During FY'11, relevant activity included:

Maryland Association of Counties CONFERENCE

MCEC participated as an exhibitor at the summer 2011 event, along with Timberock, a company that manufactures and installs solar electric vehicle charging stations.

LEGISLATIVE COMMITTEE

SUPPORTS LEGISLATION THAT WILL:

- Create Clean Energy Jobs
- Help Consumers Reduce Energy Use
- Reduce Greenhouse Gas Emissions
- Raise Profile, Increase Awareness, & Build Champions
- Foster Collaboration & Facilitate Partnerships
- Support Technical Innovation
- Encourage Entrepreneurship
- Provide Sustainable Funding for MCEC

During the 2011 Legislative Session MCEC maintained a Legislative Committee comprised of a cross section of representatives from industry and advocacy group. The committee reviewed over 70 pieces of energy-related legislation through certain filters to determine if MCEC should take a position on any. The group weighed in each week and posted a position on 40 bills. MCEC staff and/ or representatives testified on 18 bills over the course of the session.



LEGISLATIVE RECEPTIONS

Events designed to create opportunities for industry to interface with elected officials were held in January and March of 2012.

Speakers included a presentation from Susan Gray, DNR Power Plant Review Program, to talk about studies underway at that time.



Forecast for FY '12-13: "Increasing Access to Capital"

Help Consumers

CONTINUE & EXPAND MHELP

MCEC will continue to offer loans at a reduced interest rate for consumers in FY'12. Pending the decision of the PSC to direct funding to support the Maryland Home Energy Loan Program with future funding, MCEC could expand the residential program and/ or implement small commercial lending for similar purposes. However, additional funding to administer the program will be required.



CLEAN ENERGY SUMMIT

A report from the 2011 Summit will be drafted and posted following the event held in late October 2011. The MCEC Board will evaluate the outcomes of the previous two events and decide if one will be staged in 2012

LAUNCH "POWER TO CHOOSE" www.mdcleanenergy.org/powerchoose

Since Maryland is a deregulated state, competitive retail choice for power purchase is a subject that many consumers are confronting. Contract offerings are showing up on doorsteps via the mail and many consumers find the concept of deciding their best options to be a daunting task. MCEC is developing web content and print collateral to help consumers "step" through their decision and avoid pitfalls in the process. Additionally, MCEC sees the opportunity to encourage consumers to price, shop and choose "green" renewable power sources as part of the generation mix they buy. This will help drive demand and encourage investors to finance more renewable-generation installation. The soft launch of the web pages happened late September 2011 with public launch slated for November 2011.

SENIOR AUDIENCE OUTREACH INITIATIVE

Planning is currently underway to implement an initiative in partnership with the Maryland Department of Aging.



Support Businesses

ADVANCE INNOVATION & EXPAND CLEAN ENERGY TECHNOLOGY INCUBATOR & INNOVATION (CETI) NETWORK

MCEC is working with private sector partners to develop and implement initiatives designed to match evolving technologies with appropriate counter parties and help prove the viability of products or concepts in the clean tech sustainability space. MCEC seeks to create a centralized resource to support these activities at every stage of the business development pipeline with off take opportunities easy to access for investors. MCEC is working to find resources to continue its current level of innovation advancement activity and to expand the CETI network.

VENTURE FORUM

As part of the effort to increase access to capital and help Maryland start-up companies gain access to markets for their products, MCEC would like to host a venture forum event. MCEC also plans to sponsor and work with organizers of the Clean Tech Open to bring technical support and possible funding to those companies.

Inform Policy Makers

BOOTCAMP WEBINAR SERIES

Beginning in FY '12, MCEC

implemented plans to host a series of webinars designed to assist local planning and elected officials in becoming more informed and competent to implement policy, enter into power purchase agreements and install generation technologies. The program also addressed the

need for local communities to have an emergency plan for energy supply if circumstances dictate. These 30 minute sessions were initially offered live and then made available for future download via the MCEC website. Accompanying support documents and model policies are also available as



RECRUITING YOU TO OUR NEW WEBINAR SERIES

Local governments are real leaders in the deployment of clean energy technologies and energy efficiency measures. Careful implementation of innovative policies and strategic purchase agreements will transform the way Maryland uses and generates energy. Sign up for this series to examine model policies, best practices and critical considerations to get your troops into action!

RENEWABLE ENERGY BOOT CAMPS

Especially for Elected Officials, Planning and Permitting Professionals
Call the Maryland Clean Energy Center at 301-738-6280



FOR DETAILS AND TO REGISTER, GO TO WWW.MDCLEANENERGY.ORG
OR EMAIL BOOTCAMP@MDCLEANENERGY.ORG.



BOOT CAMP

- SEP 14 Community Strategic Energy Plans: Roadmaps for Success/ Maximizing Stakeholder Participation
- SEP 22 Reducing Power-Loss Risk: New Energy Assurance Plans Honoring National Preparedness Month
- OCT 12 Community Renewables: Unleashing Clean Energy Investment in Your Community
- OCT 26 Wind Power Opportunities and Ordinances: Onshore, Offshore and Rooftop Projects
- NOV 9 Electric Vehicle Infrastructure Municipal EV Readiness
- NOV 30 New Bang for the Municipal Buck: MCEC's new Tax Free Bonds Leverage Energy Savings

part of the reference library hosted on the site. MCEC worked with MML, MACo and the Maryland Association of Planners to promote the program. Over 90 registered to attend at least one of the six programs offered in the series.

LEGISLATIVE RELATIONS

MCEC is scheduled to hold the Annual Legislative Reception again in Annapolis on February 8, 2012. A Legislative Committee will likely be convened to review pending legislation, but MCEC's direct involvement in legislative relations may be scaled back pending availability of personnel and time resources.

MARYLAND MUNICIPAL LEAGUE CONFERENCE AND WORKSHOP

A proposal has been submitted to MML for MCEC to coordinate and host a workshop at the annual summer conference related to energy planning, management and policy adoption.

BENCHMARK METRICS TO MONITOR IMPACTS

As an independent, third party source, MCEC intended to capture and consolidate certain data points to evaluate the growth and development of the sector over time. Advisors have encouraged the center to issue an annual "state of the industry" report that might help identify Maryland in a competitive light, utilizing information available from existing

federal, state and private sources including the PSC, DLLR, RGGI, US DOE and US DOL. The organization should also identify and compile a set of internal measures to evaluate the impact of the organization specifically as well as the broader set measures.

MCEC should also develop and release case studies to drive consumer confidence in potential savings and investment.

In FY'12 and beyond, MCEC could certainly initiate this activity, pending the availability of funding.

Relevant Annual Data Measures:

- Revenues by appropriate NAICS
- Direct & induced employment
- kWh Renewable energy generation
- kWh of energy consumption
- RECs sold
- GHG emissions
- Energy Start-up Companies
- Related Patents issued
- Financing Programs and Incentives

MCEC FUNDING & FINANCIAL STATEMENTS

The FY'11 budget was funded with remaining cash on hand from a loan made to MCEC by MEA in FY'10 and the continued commitment of grant funds from Montgomery County, which in part covered FY'10 expenses as well.

Sponsorship, fees and donation funding raised by MCEC in FY'11 exceeded \$151,000, and were collected largely in relation to strategic initiatives, including hosting the Maryland Clean Energy Summit and Legislative Day activities. The Center ended the fiscal year with a fund balance of \$416,202 which is currently the only confirmed source of funding to allow operations to continue into FY'2012.

MCEC FY'12 budget calls for additional revenue generation from the Maryland Clean Energy Summit and from bonding activity generated over Q1 and Q2 to insure the organization is solvent through the remaining two quarters of FY'12 and beyond.

APPENDICES

A. CETI FY'11 Events

B. MCEC 2011 Advisory Board Members

C. MCEC FY '11 Audit

D. MCEC FY '12 Projected Administrative Budget

**APPENDIX A:
CETI FY'11
EVENTS**

CETI PROGRAMS & EVENTS			
Jul. 2010 -Oct. 2011			
Date	Event	Approx # of Attendees	Comments
8-Sep-10	A Smart Grid Perspective: Finding Value in the Collision of Energy and Information	25	Peter Kelly-Detwiler, SVP at Constellation.
20-Sep-10	Integrated System Model for Electric Grids	12	Robert Broadwater, Professor at Virginia Tech.
13-Oct-10	Electric vehicles infrastructure. Challenges and opportunities	14	Jill Sorensen, Executive Director of BEVI + Mahi Reddy, Founder and CEO of SemaConnect.
3-Nov-10	Smart Grids & Smart Buildings: Key areas that will influence the future of both	20	Cassandra Quaintance from Schneider Electric.
17-Nov-10	\$20 Billion solar opportunity: India's National Solar Mission (and how to participate in that)	10	Pranay Kohli, Founder and President of Amidus.
14-Dec-10	Control System Cyber Security	70	Hosted and organized by CETI. This meeting had well-known experts in the subject speak.
15-Feb-11	NIST Regional Outreach Meeting on Control System Cyber Security activities	140	Six invited expert speakers talked about what NIST is doing in the field of smart grid cyber security. Hosted and organized by CETI.
16-Feb-11	Biofuel and Biomass Meeting	35	Organized by MCEC, Peter Gourlay and CETI. Speakers were CETI companies + others. Half-day seminar meeting.
24-Mar-11	Combined Heat and Power Seminar and Workshop	40	Organized by MEA. Hosted by CETI.
25-May-11	Meeting with Companies Interested in Smart Grid Cyber Security	8	Organized and hosted by CETI.
27-May-11	Get-together of CETI Companies	12	Organized and hosted by CETI with the objective of encouraging CETI companies to work together.
15-Jun-11	Critical review and discussion of the final actions of the recently concluded 2011 legislation session of the Maryland General Assembly	18	Jack Neil, principal of Jack Neil & Associates LLC.
20-Jul-11	Passive House: What Is It and How Does It Work?	12	Brian Uher, co-founder of ECORE Living.
27-Jul-11	Meeting with Companies Interested in Smart Grid Cyber Security	10	Organized and hosted by CETI.
27-Jul-11	European Student Leaders	17	Organized by Georgetown University. Hosted and presented by CETI.
17-Aug-11	Smart Grid: What Is It and What Are the Opportunities?	15	Bjorn Frogner of CETI, Entrepreneur in Residence at CETI.
22-Sep-11	Visits by German delegation	10	Organized by MCEC and conducted by CETI.
27-Sep-11	How to Raise Capital: Best Practices	12	Art Jacoby, leading investor and investment advisor in Maryland for cyber security companies.
1-Dec-11	Distributed Data Mining for Smart Grids	10	Hillol Kargupta, Professor in CSEE Department at UMBC.
15-Dec-11	What Entrepreneurs Should Know About Clean Energy	15	Alex Pavlak of Thales Research, Inc.
3-Mar-11	Opportunity to Make Pitch to Dr. Alvin Lavoie Technical Director at DOW Chemical	8	Organized and hosted by CETI to give a few companies the opportunity to ask for investment from DOW.
Total		513	

APPENDIX B: MCEC 2011 Advisory Board Members

2011 MCEC ADVISORY BOARD													
Name	Company	Sector	County	Solar	Wind	EE	Biomass & Biofuel	Geo therm	Energy Storage	Hydro	Power	Bus	Other
Daniel H. Nadash	Potomac Energy Fund	Finance	FC									x	
Hilari Varnadore	Frederick County Office of Sustainability		FC										x
Brent Hollenbrook	Timberock	Solar Electric	FC	x									
Brian Webster	Aztec Solar	Solar	CAR	x									
John Congedo	AC Wind	Wind	Alleghany		x								
Rebecca Rush	Renewable Energy Stewardship	Other	Wash Co.									x	x
Derek Robertson	Wave Bob	Hydro	AA							x			
Brian Quinlan	Lars Energy	Biomass	AA				x						
Mark Schulz	Earth River Geothermal	Geothermal	AA					x					
Gerri Nicholson	Sage Energy	Consultant	AA									x	x
Claire Buchner	Law Offices of Clair Buchner	Other	AA										x
Gary Skulnik	Clean Currents	Energy Broker	MC									x	
John Spears	Sustainable Design	EE Contractor/Architect	MC			x							x
Jean-Paul Crouzoulon	Areva	Renewable Energy	MC	x	x		x		x				x
Bob Hoyt	Montgomery County	Government	MC										x
Stewart Edelstein, PhD	Universities at Shady Grove	Academia	MC										x
R. Thomas Hoffmann	Ballard Spahr	Legal	MC										x
Hannah Wood	Sentech	Energy Consultants	MC			x							
Jim McDonnell	Avalon Energy Services	EE, etc.	MC			x		x					
Jan Brinch	Energetics	Energy Consultant	MC									x	x
Tony Clifford	Standard Solar	Solar	MC	x									
Carlos Fernandez-Bueno	Potomac Wind Energy	Wind	MC		x								
Kim Watson	PEPCO	Power Distribution	MC									x	
John Ackerly	Alliance for Green Power	Biomass	MC				x						
Sean O'Neill	Ocean Renewable Energy Coalition	Hydro	MC							x			
Liz Porter	Lockheed	Multiple	MC										x
Vanessa Deutschmann	GroSolar	Solar	HC	x									
Josh Goldberg	Astrum Solar	Solar	HC	x									
Grant Shmelzer	IEC Chesapeake	Electrical Contractors	PG	x	x	x		x	x		x	x	x
Stephen Pattison	Greenhorne & O'Mara	Consulting Engineers	PG										x
Eric Wachsmann, PhD	UMERC	Academia	PG										x
Kerinia Cusick	Sun Edison	Solar	PG	x									



APPENDIX B: MCEC 2011 Advisory Board Members (cont.)

2011 MCEC ADVISORY BOARD													
Name	Company	Sector	County	Solar	Wind	EE	Biomass & Biofuel	Geo therm	Energy Storage	Hydro	Power	Bus	Other
Bill Stone	Modern Lighting	EE	PG			x							
Ken Stadlin	Kenergy	Solar	PG	x									
Rick Peters	Solar Energy Services	Solar Thermal	PG	x									
Rob Minnick	Minnick's	EE, Geothermal	PG	x		x		x					
Peter Lowenthal	Johnson Controls	Multiple Technologies	PG	x	x	x		x	x				
Mike Tidwell	Chesapeake Climate Action Network	Environmental Advocacy	PG										x
Joanne Throwe	Md. Environmental Finance Center	Finance	PG										x
Paul Wittemann	Greenspring Energy	Solar	Balt. City	x									
Peter Van Buren	Terra Logos	EE	Balt. City			x							
Sophie Dagenais	Mayor's Office	Government	Balt. City										x
Brad Heavner	Environment Maryland	Environmental Advocate	Balt. City										x
Connie Lausten	New Gen Biofuels	Biofuel	Balt. City					x					
Jerome Sanders	BithEnergy	Energy Efficiency	Balt. City			x							
Michael D. Smith	Constellation Energy	Power Gen & Distribution	Balt. City								x		
Cindy Parker	JHU	Academia	Balt. City										x
Ted Atwood	Balt. City Dept. General Services	Government	Balt. City										x
Robin Davidov	Northeast Maryland Waste Disposal Authority	Biomass	Balt. City					x					
Michele Peterson	Honeywell	EE				x							
Andrew Maus	Soliel Solar	Solar	Balt. City	x									
Ellen Hemmerly	bwtech at UMBC	Business Incubation	Balt. Co.									x	x
Bill Cole	Pfister Energy	Renewable Energy	Balt. Co.	x	x	x		x					
Bill Blanchette	Chesapeake Geo Systems	Geothermal	Balt. Co.					x					
Michael Giangrandi	AJ Michaels Company	HVAC Contractor	Balt. Co.				x						x
Lynn Hogg	SSI	Multiple	Balt. Co.	x	x	x							
Steve Arabia	NRG	Power Gen	Dorc. Co					x			x		x
STATEWIDE/ Regional													
Carl LaVerghetta	MES	Project Development						x					
Paula Carmody	OPC	Government											x
Melanie Santiago Moser	PSC												x
Dan Rider	DNR	Biomass						x					
Kelly Speaks Backman	MEA	Government											x
Bernie Reynolds	MD DLLR/GWIB	Government											x
Larry Zarker	BPI	EE & Other						x					x
Robert Phinney	Skanska USA Building	EE & Construction				x							x
Matt Ferguson	Reznick Group	Finance											x

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APPENDIX D: MCEC FY'12 Projected Administrative Budget

**MARYLAND CLEAN ENERGY CENTER
FY '12 ADMINISTRATIVE/OPERATIONS BUDGET**

		<u>2012</u>
<u>Revenue</u>		<u>Budget</u>
Fees from Bond Activity		165,000
Administrative Reimbursement		47,752
Summitt Proceeds		15,000
Donations		2,000
Interest		800
		<u>\$ 230,552</u>
 <u>Expenditures</u>		
Salaries & benefits		
	Salaries	234,800
	Benefits	59,000
Interns and Contractual Services		20,000
Technical & Special Fees		
	Legal	12,000
	Public relations	-
Communication		
	Telephone	3,700
	Postage	500
Travel		
	Business travel	3,200
	Meetings & Events	400
Contractual services		
	Information systems	3,000
	Accounting & auditing	19,500
	Marketing & promotion	-
Supplies & materials		
	Office supplies	3,000
Government relations		20,600
Fixed charges		
	Office Rent/Parking Fees	4,875
	Insurance	-
	Dues & subscriptions	400
Total Expenditures		<u>\$ 384,975</u>
Net Change		\$ (154,423)

** Please note, this budget does not include restricted funds held for Program activity