

PROFILES IN REGIONAL SOLAR PLANNING: A HANDBOOK AND RESOURCE GUIDE

2nd Edition



Case Studies

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Suffolk County and Nassau County Planning Commissions: Long Island Unified Solar Permitting Initiative

Greater Long Island, NY region
Population: 2.8 million
Size: 2826 square miles
www.suffolkcountyny.gov
www.nassaucountyny.gov

The *Long Island Unified Solar Permitting Initiative* (LIUSPI) was launched in 2009 by the Suffolk County Planning Commission and the Nassau County Planning Commission. Prior to this effort, Long Island's solar installation permitting process had a different set of regulations for each town and village, creating confusion, delays and extra costs. For example, some communities treated solar installations as a structure, as an add-on, or as related to plumbing or electrical installations.

As solar installations became more prevalent in the region, it became evident that a standardized and more efficient approach was needed. The Clean Energy Leadership Task Force run by the Sustainability Institute at Molloy College began asking local governments to identify the best set of rules that could be adopted region-wide to help facilitate solar installations. Under the direction of the Suffolk County Planning Commission Chair David Calone, a committee was formed, including representatives from the Suffolk County Planning Commission, the Nassau County Planning Commission, the Long Island Power Authority, industry experts and various municipalities. The Committee sought to create a permitting process that could be executed quickly, but retained safety and quality control. It was important that the application was not so easy that any solar installation could pass without the proper safety measures.

In October 2011, the committee proposed an expedited and standardized process for residential solar electric systems. The new Solar Energy System Fast Track Permit Application process allows municipalities to meet the regulatory requirements, while reducing the time and money associated with approving solar installation permits.



The Long Island solar photovoltaic permitting situation was described as costly and inefficient, specifically, "inconsistent local permit requirements can add hundreds of dollars to the cost of installing a solar electric system."

– Gordian Raache, Executive Director,
Renewable Energy Long Island

Key components of the new standardized permitting process include:

- waived or minimal application fees;
- permit decisions provided within 14 days of completed application submissions;
- the creation of a central registry of solar installations;
- warning label requirement on the utility meter and any AC disconnect switch; and
- that the Solar Energy System Fast Track Permit Application be utilized as an alternative to existing building permits forms.

Another important aspect of the application includes waiving the need for a survey of the entire property or other information that is not relevant to the solar installation.

Lessons Learned

To encourage municipalities to adopt LIUSPI, the Long Island Power Authority provided incentives of \$15,000 to each township and \$5,000 to each of the first ten villages in Nassau and Suffolk that adopted LIUSPI by December 2011. Currently all ten towns in Suffolk have adopted LIUSPI and the committee is continuing to reach out to the remaining municipalities.

- Research the details of the permitting process thoroughly prior to introducing an initiative. This information will help mitigate the amount of questions and uncertainty municipalities might have in regards to initiative adoption.
- Recognize the importance of standardizing solar installations to expedite the process and reduce costs, while maintaining safety and quality control.

Western Riverside Council of Governments: Regional PACE Program

Western Riverside, CA
Population: 1.7 million
Size: 2,100 square miles
www.wrcog.cog.ca.us
951.955.7985

The Western Riverside Council of Governments (WRCOG) is comprised of 17 cities in Western Riverside County, the County of Riverside, the Eastern Municipal Water District and the Western Riverside Water District. It is a subregion of the Southern California Association of Governments, stretching from Orange County in the west to the City of Banning on the eastern edge and City of Temecula on the southern edge. It is a fast-growing region, with a diverse mix of development. WRCOG is the joint powers agency that provides the region's collective voice on important regional issues.

WRCOG's Property Assessed Clean Energy Program

In July of 2008, California passed Assembly Bill 811, allowing local governments the authority to enter into voluntary contractual assessment programs with property owners and to offer low-interest financing that would be repaid over time through annual property tax payments. This allows local governments the ability to finance the installation of renewable energy sources – like solar – and energy efficiency improvements to structures, making them more affordable. When used for clean energy improvements, these are commonly referred to as Property Assessed Clean Energy (PACE) programs.

WRCOG hosts a Technical Advisory Committee of city managers, county and water district executives from across the region. In the fall of 2009, the Committee expressed interest in pursuing this new legislation. They made a recommendation to WRCOG's Executive Committee to create a

regional-scale model PACE program for energy-efficiency and water conservation (similar legislation for water conservation improvements was passed a year after AB 811). Following direction from the Executive Committee, WRCOG solicited proposals for the development of a regional-scale program and hired Public Financial Management (PFM) as their consultant in 2010.

The original plan was to create a large municipal bond program to fund the loan program, but like many other programs across the country, this was sidelined by the concerns raised by Freddie Mac and Fannie Mae. Working with its consultants, WRCOG came up with an alternate solution, establishing partnerships with other finance and investment firms to raise private investment. WRCOG found that there was great interest in investing in clean energy in their region and a total of \$325 million in investment funds were acquired for the program. The investment partners, to date, for this project include Renovate America, which contributed \$100 million in asset-backed micro-bonds for residential projects; Samas Capital, which finances the \$200 million targeted for small and medium-sized commercial projects; and Structured Finance Associates, LLC,

which manages the \$25 million loan program for large commercial projects. In addition to these partners, the team has brought in specialists to help record and track the assessments, and a bond rating agency so all assessments are given credit ratings.

While the funding was being secured, WRCOG worked with its partners and its

With the launch of the HERO Program, we are excited to offer residents and businesses in Western Riverside County this valuable financing opportunity. The Program offers a unique combination of economic and environmental benefits, as it will provide needed construction-related jobs, help property owners realize utility bill savings while improving their properties, and reduce greenhouse gas emissions associated with energy use.

– The Honorable Robin Hastings, Former Councilmember of Moreno Valley, CA and Former Board Member, WRCOG

committee to develop the policies and procedures for the program. Using Sonoma County, California's program as a guide, the team worked out details such as which jurisdictions would participate, qualifications, terms, application processes, types of eligible improvements, penalties and marketing, among other details. Following the stipulations of AB 811, WRCOG submitted regular reports to its Executive Committee. The entire process took approximately two years, with about eight months dedicated to working on the complexities of the program and another year to secure credit ratings on the assessments.

WRCOG's *Energy Efficiency and Water Conservation Program* for Western Riverside County was launched in December 2011. It is the combination of three programs:

- **HERO* Residential** – Managed and financed by Renovate America, this program has \$100 million available for financing to install eligible products for residential property owners.
- **HERO Commercial** – Utilizing over \$200 million in financing provided by Samas Capital, this program offers financing for 125 kW or smaller renewable energy projects, plus eligible energy efficiency and water conservation products, for all types of commercial properties.
- **HERO Large Commercial** – Managed and financed by Structured Finance, this program has \$25 million in financing to support financing for 125 kW or larger renewable energy projects, plus eligible energy efficiency and water conservation products, for all types of commercial properties.

With separate firms managing each of these programs, WRCOG works in coordination and has administrative capacity, maintaining a consistent marketing campaign and serving as the lien holder. When a loan is approved through one of these programs, WRCOG and the property owner enter into an assessment contract, through which WRCOG pays the up-front costs of the eligible improvements. Working with the County's Tax Collector, WRCOG

then places an assessment lien on the property, and the property owner repays the improvements as part of an annual assessment on the property tax bill over a specified period of time. WRCOG hopes to meet its goals of providing financing to over 13,000 residential and commercial property owners in the region, helping property owners save energy and significantly reduce energy use and utility costs, and creating an estimated 4,000 local jobs.

Lessons Learned

With \$325 million available, WRCOG's *Program* is the largest PACE program of its kind in the United States; its approach is being emulated by others in Southern California and across the country. WRCOG's Executive Committee and Director view this program as an important benefit to its communities – both in terms of energy sustainability and economic development – and therefore, an important regional objective.

In addition to the projected benefits to the economy and environment, WRCOG has viewed this program as an excellent way to coordinate regionally and has identified several lessons learned:

- The high level of complexity in development and administration, made the program best suited for regional scale administration.
- Be flexible with the timeline. The biggest challenge during the process of developing and launching the program was giving it sufficient time. As WRCOG and its team responded to hurdles along the way, the time to project launch was delayed.
- Provide extra time for development of program policies and procedures, and receiving credit ratings.
- Require a small administrative fee to help cover costs in the absence of state, federal or additional outside funding.

* *Home Energy Renovation Opportunity Financing Plan*



Pima Association of Governments: Regional Solar Plan

Tucson, AZ

Population: 980,263

Size: 9,187 square miles

www.pagnet.org

520.792.1093

Founded in 1972, the Pima Association of Governments (PAG) is a federally designated metropolitan planning organization, comprised of nine member jurisdictions in the greater Tucson region. PAG represents an environmentally and culturally diverse region, including the city of Tucson, surrounding towns and several Native American Reservations.

PAG and Solar

In 2008, Tucson was designated a Solar America City by U.S. DOE. The region enjoys around 300 days of sunshine a year and is home to one of the largest solar power arrays in the nation. In early 2009, the City of Tucson approached PAG to assist with their Solar America Cities grant. The City was charged with hosting community outreach events to educate businesses and consumers on the benefits of solar. In an effort to assist the city and facilitate the development of solar in the region, PAG and the City of Tucson established the Solar Partnership. The Partnership is membership based and includes installers, manufacturers, end users, municipalities and government agencies based upon a flexible fee structure. During meetings, members focus on outreach and education to the community as well as working on solar energy legislation. Currently, the Solar Partnership has more than 40 members.

Shortly after the formation of the Solar Partnership, PAG and the City of Tucson developed the Greater Tucson Solar Development Plan, a component of PAG's

Overall Work Plan, to assist and accelerate solar deployment in Southern Arizona. Funded through the Solar Partnership, the *Plan* is comprised of twelve primary stages designed to establish a viable market for solar energy; help the region compete effectively with other western states; stimulate investment and workforce growth in the region; and secure the participation of key stakeholders.²⁸ For example, several of the stages include establishing rules and regulations to support healthy solar energy development and markets; establishing the financial incentives necessary to support renewable energy investments; and improving the ability of municipal governments to facilitate the solar energy development.²⁹ Several of the *Plan's* goals have been met or exceeded. The Solar Partnership meets monthly to discuss and update the Solar Plan to reflect these achievements and continue to develop the solar market in Southern Arizona.

PAG's efforts to develop the solar market in Southern Arizona have also benefited from a fairly generous state incentive program. However, these incentives, coupled with other market forces, assisted in an oversaturation of the region's solar installation market. As more installers flocked to the region, the quality of the installations began to suffer. The local utility, Tucson Electric Power (TEP), called upon PAG to work with local installers on the Southern Arizona Solar Standards Board (SASSB) for assistance in maintaining quality solar installations.

The SASSB, established originally by five local solar installers, works to inform consumers and



Pima Association of Governments

Solar Partnership Vision is "to support a diverse and vibrant business, educational, and governmental community that is fully engaged in making southern Arizona one of the preeminent leaders in the world for the development and utilization of solar energy."

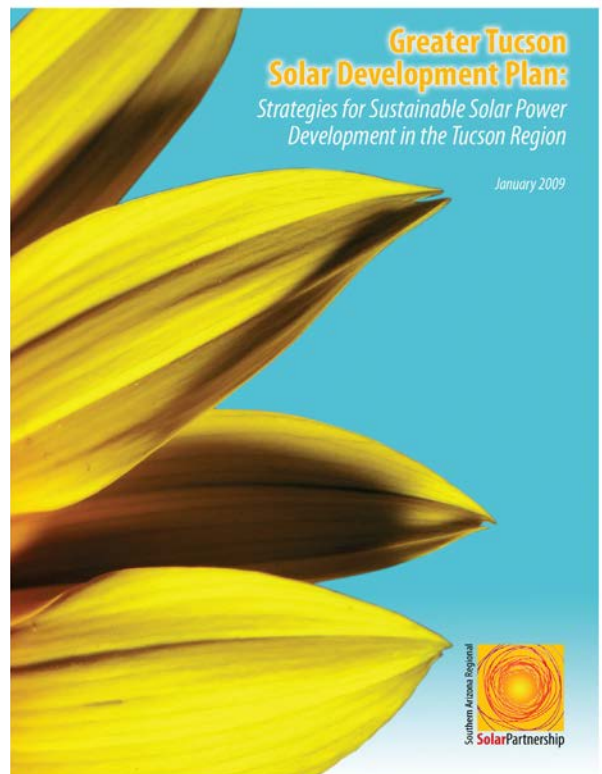
– Southern Arizona Regional Solar Partnerships Brochure

rank local installers based upon a system of best practices. The SASSB provides a set of goals to help installers attain accreditation. These goals refer specifically to established best practices associated with solar installation, such as having at least one NABCEP (North American Board of Certified Energy Practitioners) certified person on staff. Installers who successfully achieve the outlined goals receive the SASSB's stamp of approval and are listed on the SASSB's website as accredited installers. Companies that do not currently meet the outlined standards, but want to be included in SSB's database, are provided one year to meet these standards with the assistance of the SASSB.

Lessons Learned

The SASSB works to enhance and improve the solar business climate in Southern Arizona by promoting best practices, educating the general public and assisting solar businesses looking to install long-lasting, quality installations. Because the Tucson region benefits from one of the largest solar power arrays in the nation, it has experienced success through its solar programs. The implementation of such programs has taught PAG that:

- It is important to maintain the quality of solar installation throughout the region, while still attracting projects through state incentives;
- A system of best practices is helpful to inform consumers and installers about the benefits of solar and how installers can attain accreditation; and
- Providing incentives to installers to follow best practices, leads to the installation of long-lasting, quality installations.



PAG's Greater Tucson Solar Development Plan.

Credit: PAG

Denver Regional Council of Governments: Solar Map Project

Denver, CO

Population: 2.8 million

Size: 5,288 square miles

www.drcog.org

303.455.1000

Since 1955, the Denver Regional Council of Governments (DRCOG) has served as a voluntary association of local governments and a voice for regionalism in the nine-county Denver, Colorado region. DRCOG serves as the region's planning commission, metropolitan planning organization (MPO) and area agency on aging (AAA), and also fosters cooperation among local governments for other regional needs related to the environment, data, growth, development and many more issues that cross jurisdictional boundaries.

DRCOG and Solar

In December 2009, DRCOG received a New Energy Economic Development grant from the Colorado Governor's Energy Office to develop a solar map that provides information on a given rooftop's solar capacity and simultaneously connects residents and businesses with installers who could help them capitalize on that capacity. Where detailed building data was available, the interactive solar map analyzed the roof space (without significant obstructions) and solar orientation of commercial and residential buildings in the 56 cities, towns and counties represented by DRCOG. This data was then translated into an easy-to-understand calculation, providing residents and business owners with an accurate assessment of their building's potential for solar photovoltaic (PV) installation. The project started out with a focus on commercial buildings, but expanded to include residential buildings.

The solar map, which supports the sustainability aspects of DRCOG's Metro Vision 2035 plan

and the achievement of Colorado's Renewable Portfolio Standard, was created with support from a public/private partnership with Woolpert Inc. (Dayton, Ohio) and the Colorado Solar Energy Industries Association (COSEIA) (Boulder, Colorado) in an effort to more easily link building owners with solar installers that would have the potential to create jobs, stimulate the economy and encourage broader solar energy adoption. Both partners were key in the project development and implementation process – Woolpert provided the technical knowledge that existing data could be used to create the map, and COSEIA provided rooftop solar potential information more specific and tailored to the Denver region than material publicly available from sources like the U.S. Department of Energy's (DOE) National Renewable Energy Laboratory (NREL).

The result is a user-friendly map with a simple interface that requires no training. When a user types in an address or zooms in to a building on the map, the first information displayed is a month-by-month estimate of the power generation capacity in kilowatts if a solar PV system were installed on all available roof area for that address. If a user clicks "Next," he or she will see estimated electric bill savings, as well as related information about the

estimated system sizes and available incentives. Clicking "Next" again leads the user to a contact form where the user can input his or her name, contact information and a few preferences so that an area solar installer may contact the user directly to provide a personalized estimate with detailed incentive opportunities. The information submitted is

DRCOG is proud of the solar map project, and it really helps supplement our very successful ongoing regional data efforts. Residents, businesses, and other organizations now have access to this very useful tool, and we've received a lot of positive feedback. The project itself aligns perfectly with the goals set forth in our long-range Metro Vision plan, which emphasizes sustainability and more broadly making life better in the Denver region.

– Jennifer Schaufele, Executive Director,
Denver Regional Council of Governments

then passed on to regional solar installers who have access to the solar map and more detailed data provided by DRCOG and its partners.

For a map like DRCOG's, several key datasets are essential, including high-resolution digital orthophotography for feature and building identification, Light Detection and Ranging data (LiDAR) to quickly identify obstructions on rooftops that could inhibit PV panel placement, and building footprints and parcels (property ownership) for areas where LiDAR does not exist. DRCOG and its partners created the map using data from its ongoing *Denver Regional Aerial Photography Project* (DRAPP) and Denver Regional Data Consortium which fosters regional data development and is used for transportation, parcel, land use and zoning, among others. Using LiDAR, Woolpert built a web-based computer program that analyzes the roof space and solar orientation of commercial and residential buildings throughout the DRCOG region. In addition, some federally and locally funded LiDAR data created when Denver hosted the Democratic National Convention in 2008 was leveraged for this project. Finally, local governments coordinated with DRCOG and Woolpert to provide building footprints for areas without LiDAR data. This fit in well with DRCOG's on-going efforts to collect similar data from its members, as this information is used to support other long-range planning, transportation and land use modeling efforts.

After collecting the data and beginning to build the map, DRCOG worked closely with COSEIA to develop solar power generation estimates specifically for the Denver region. Beyond these estimates, the team also identified estimates of PV system size for given buildings and projected electric bill savings estimates.

The datasets from DRCOG's member governments and region-specific information from COSEIA were then loaded into DRCOG's enterprise Geographic

Information System (GIS) database. Each time a user accessed the Google Maps Application Programming Interface (API) or Solar Map interface to look up their address or click on a building, a query is sent to DRCOG's database and a custom calculation is performed on-the-fly and the information is sent back to the user via the Google Maps interface. After identifying a building of interest, users can access the information described above. In the map's first month of activity, there were nearly 8,000 unique visitors. Within the first two months of the map's release, 14 leads were generated for solar installers from the online form. Both measurements are important indicators of how the map is educating the public about solar information. DRCOG is currently working on measuring the data created by the site, specifically job creation numbers. DRCOG is developing partnerships to continue efforts to educate the public about how the site helps residents and business owners connect with local solar providers.

Lessons Learned

DRCOG and its partners identified several areas where their experiences could help inform other regional planning organizations developing similar mapping projects:

- Partnerships are critical for success - both technical partnerships (LiDAR data processing, database, map design and maintenance) and with solar installers (provide accurate solar PV potential estimates);
- Effectively maximizing available data and tools, results in cost savings, a familiar user interface and an easy to update back-end system; and
- Recognize the need for continuing funding or partnerships that can market and maximize the number of end users, resulting in larger impacts on the growth of the solar PV industry within their region.



Merrimack Valley Planning Commission: Clean Energy Action Plan Brings About Collaborative Regionalism

Haverhill, MA

Population: 325,000

Size: 270 square miles

www.mvpc.org

978.374.0519

The Merrimack Valley Planning Commission (MVPC) is comprised of fifteen communities along the Merrimack River in the northeastern corner of Massachusetts. The region is bounded by New Hampshire, the sea and the Boston metropolitan area, and has a diverse mix of urban, coastal and rural development. MVPC is the region's federally designated metropolitan planning organization (MPO) and has served as the area's regional planning commission for over 50 years.



Going Green Regionally

In 2008, The Merrimack Valley Planning Commission (MVPC) conducted an assessment of their regional challenges to economic growth in updating their Comprehensive Economic Development Strategy (CEDS). Based upon this assessment, MVPC identified the need to support the region's growth areas and energy needs by developing plans to reduce the region's carbon footprint, the creation of model ordinances to guide alternative energy development and assist municipalities pursuing renewable energy projects. In response to these needs, MVPC created the Merrimack Valley *Clean Energy Action Plan*. The Plan identifies energy challenges, resources, and strategies for each community in the region, and creates an action plan on how these communities can work together to reduce the region's carbon footprint.

Energy Challenges

MVPC's first step was to establish a *Regional Energy Manager Program*. Through this program, MVPC brought on the expertise needed to assist the communities by recommending how they

could best conserve and generate energy. The Regional Energy Manager monitored each participating communities' energy use and expenses and then recommended corresponding changes to reduce their energy

usage. To assist the *Program*, MVPC contracted with Peregrine Energy Group to provide strategic technical services and support. Peregrine learned that most communities were interested in identifying and implementing energy savings improvements in their older municipal buildings, and suggested considering using Energy Performance Contracting to address this need.

Energy Performance Contracting is a special procurement tool, allowing Massachusetts cities, towns, school districts, and other public agencies to purchase a bundle of energy management services from qualified energy vendors (ESCO). In such agreements, the selected energy vendor guarantees that implemented projects will result in specified, measurable savings, and the savings can then be used to finance the cost of a project. To date, six communities (Lawrence, Haverhill, Merrimack, Methuen, North Andover, and Salisbury) have entered into an Investment Grade Audit Agreement with Ameresco, the selected ESCO provider. Preliminary estimates suggest that Ameresco will undertake approximately \$15M in improvements, which will result in over \$1.3M of energy savings each year for the six communities participating.

In addition to energy savings improvements, communities wanted to explore their renewable energy options. MVPC conducted a "Fatal Flaws" analysis for nine communities that identified eleven landfills, which could potentially be developed

into solar farms. The analysis confirmed that five communities were candidates for installing solar on their landfills. Despite this analysis, the five communities still needed assistance in advancing these projects, developing Power Purchase Agreement (PPAs) RFPs and monitoring the project's implementation. MVPC procured the services of Meister Consultants Group to act as Regional Energy Managers and assist each of the five participating communities in developing these projects as well as identifying other solar development opportunities.

Green Communities

In 2008, the Commonwealth passed the Green Communities Act, which encouraged communities to reduce energy consumption and costs. To encourage the development of solar energy, Massachusetts allows municipalities to purchase power from solar developers. Using the ESCO effort as a model, MVPC solicited proposals from solar developers to sell power to participating communities. Communities have various pricing options to choose from, but preliminary estimates indicate that the four participating communities will save over \$600,000 in the first year alone. This latest MVPC renewable energy initiative

will allow communities to buy power directly from power suppliers at rates lower than retail, producing savings at a minimum of 10 percent.

Lessons Learned

Through its extensive efforts to create a truly "Green" region, MVPC learned that regionalization is not a government structure but more of an approach to how communities can work together to address common challenges.

- There were two key components to making the region's energy projects successful:
 1. Solid leadership from local elected officials, and
 2. Continuous, diligent effort to keep the projects moving.
- MVPC found that through offering various energy efficiency project options, each community can tailor the program to meet their needs, while collaborating with others on shared issues.
- MVPC continues to build off early successes, taking advantage of the momentum they have created.
- There is still a need to bring collective capacity, share experiences, solicit available resources, create efficiencies and maximize community benefits.



Credit: MVPC

Delaware Valley Regional Planning Commission: Alternative Energy Ordinance Working Group

Greater Philadelphia, PA region
Population: 5.6 million
Size: 5,000 square miles
www.dvrpc.org
215.592.1800

For over 40 years, the Delaware Regional Planning Commission (DVRPC) has worked to foster regional cooperation in a nine-county, bi-state Greater Philadelphia region, which includes Bucks, Chester, Delaware, Montgomery and Philadelphia counties in Pennsylvania; and Burlington, Camden, Gloucester and Mercer in New Jersey. Through DVRPC, the region's 352 municipalities work together to address key issues, including transportation, land use, environmental protection and economic development. DVRPC provides comprehensive, coordinated planning for the orderly growth and development of the region.

DVRPC and Solar

Municipalities in the DVRPC region are increasingly faced with the task of regulating the installation of small-scale renewable energy systems. As energy costs rise, and state and federal incentives reduce the initial cost of these systems, residents and businesses, some driven by environmental awareness, are becoming increasingly enabled to install renewable energy systems. In 2009, at the request of the region's nine counties, DVRPC established the Alternative Energy Ordinance Working Group (AEOWG) to bring together leadership from counties and municipalities in the DVRPC region to compile resources to support the safe and sound development of small-scale alternative energy systems, including solar photovoltaic (PV), small wind (<100 Kilowatt or kW) and geothermal.

Over the last three years, the AEOWG has drawn on the expertise and activity in the region to develop a series of Renewable Energy Ordinance Frameworks (REOF). These Renewable Energy Ordinance Frameworks are intended to serve as a resource for municipalities as they develop and update ordinances to govern the siting of small-scale renewable energy systems in their community.

The REOFs are available for download on DVRPC's website here:

<http://www.dvrpc.org/EnergyClimate/aeowg.htm>.

The function of the solar REOF is to provide the reader with a range of options for developing ordinances to regulate solar energy systems. The framework allows a municipality to build a customized ordinance that addresses their local issues by choosing the most appropriate language from among the options. The intent of this "menu" approach is to provide language choices and corresponding explanations that address the full breadth of barriers, benefits and cautions for municipalities to consider for solar energy systems. The document consists of the seven sections typical of an ordinance, containing language options with explanations as necessary of what language choices might be more permissive or restrictive.

To create the REOFs, the AEOWG first compiled zoning ordinances for solar, small-wind and geothermal energy systems from municipalities within the DVRPC region. Through AEOWG meetings hosted by DVRPC, municipal leaders and staff were engaged from the outset. Industry representatives were consulted to help frame the issues. The AEOWG examined relevant municipal ordinances to identify key issues to incorporate into the REOFs, including: legal restrictions within local and state laws (e.g. Home Rule) and regional consistency among local governments. The AEOWG was divided into subgroups for an in-depth examination of and language creation for the frameworks. This launched an iterative process of feedback and review among the AEOWG members for each framework. This multifaceted review process was a critical component to the REOFs and included three levels: industry, municipal and legal. These reviews assure the REOFs are consistent with best practices, ensure that language is compatible with evolving renewable energy

systems, meet the needs of the local governments and are consistent with the municipal planning codes in New Jersey and Pennsylvania.

This effort was conducted with limited staff resources from DVRPC and its member counties. Within DVRPC, this work is housed in the Office of Energy and Climate Change Initiatives' work program and is carried out with approximately five percent of a single staff member's time. Comprehensive planning funds support this initiative. Staff time from DVRPC and county governments support AEOGW facilitation, research and fact checking. Additionally, the City of Philadelphia provided funding through its Solar America Cities program to conduct a legal review of the REOFs.

DVRPC seeks to continually update the REOFs as technologies evolve and municipalities adopt ordinances. DVRPC is examining ways to expand the use of the REOFs beyond promotion within its member jurisdictions by incorporating the work into Connections, its long-range plan.



The City of Philadelphia was selected as a Solar America City, spurring interest in solar across the region.
Credit: DVRPC

Lessons Learned

DVRPC's work with its AEOGW identified several lessons learned:

- Create model ordinance frameworks that are regionally appropriate and inclusive;
- Include representation from municipalities and organizations that have land use authority;
- Engage diverse industry representation early;
- Determine legal liability, limitations and requirements;
- Conduct national research that can be made regionally specific;
- Establish an iterative, structured review and feedback process;
- Determine an appropriate, easily customizable, flexible and interactive presentation, for easy access and use of documents by the end-user;
- Identify integrated end goals for promotion of activities, such as a marketing and outreach strategy and audience(s);
- Allocate adequate staff time and resources with dedicated funding; and
- Integrate activities into broader initiatives of the regional planning organization.



Metropolitan Washington Council of Governments, EPA and Optony: Metro DC Clean Energy Collaborative Procurement Initiative

Washington, DC

Population: 4.9 million

Size: 3,685 square miles

www.mwcog.org, 202.962.3200

www.epa.gov, 202.272.0167

www.optony.com, 408.567.9216

The *Metro DC Clean Energy Collaborative Procurement Initiative* provides a collaborative platform for deploying clean energy technologies across multiple government and educational organizations for maximum impact on installed onsite solar energy capacity, local economic activity and the regional environment.³⁰ Created in 2010, this Initiative is supported by the U.S. Environmental Protection Agency's (EPA) Green Power Partnership, the Metropolitan Washington Council of Governments (MWCOG) and Optony Inc.³¹ The Initiative is located in the Washington, DC metropolitan region, which includes the District of Columbia and the surrounding counties and cities in Maryland and Virginia.

Based upon a successful Silicon Valley collaborative model, the Initiative aims to replicate the benefits of collaborative procurement in the Metro DC Region, including: reduced up-front and administrative costs, creation of local jobs, lower project risks, and lower electricity prices. Through collaborative procurement, communities can reduce the up-front costs of solar installations by working together as a group to evaluate project sites, procure solar systems and negotiate contracts, thus yielding much lower transaction costs for each individual participant.

The solar collaborative provides a new opportunity to introduce solar energy at affordable prices to agencies in the National Capital Region. When enough agencies join the collaborative, the projects could generate nearly 40 megawatts of energy – enough to power 2,200 homes and avoid 26,700 metric tons of carbon dioxide.

– The Honorable Penelope A. Gross, NARC Board of Directors President, Mason District Supervisor, Fairfax, VA County Board of Supervisors, and MWCOG Board Member

Collaborative procurement also encourages bundling sites based upon scale. Scale refers to the size of the project: larger sites require significant scale whereas smaller sites are best suited for rooftops with limited space. Companies are then able to bid on site bundles that match their installation capabilities. For example, larger solar capital companies bid on the larger scale sites, while local or regional installers bid on the smaller sites. Linking companies with sites by scale provides scale group pricing, supports local vendors and assures that a vendor has the capacity to complete the task.

Detailed feasibility studies are produced for each participating site. These evaluations ensure that sites can support a solar installation (e.g. the site is structurally sound or the roof isn't blocked by tree coverage) and economic evaluations to determine realistic cost savings potential. Inspecting the sites, prior to issuing a request for proposals (RFP), saves time and money for both the site owner and the solar installer.

Partners

Optony Inc., a solar energy consulting firm, provided solar expertise to agencies in the metro DC region. Hiring an outside, independent solar expert can significantly reduce the administrative costs associated with collaborative procurement. The addition of a solar expert can save a community the time and resources that it would need to dedicate to researching the solar collaborative procurement process, therefore significantly reducing administrative costs.

The *Initiative* is also supported by several of MWCOG's committees including the Climate, Energy and Environment Policy Committee, the associated Energy Advisory Committee, and MWCOG's Regional Environmental Fund. MWCOG uses these committees and resources to reach out

and assist local governments and promote the project. MWCOG also hosts workshops and meetings in which the Initiative is publicized.

Successes and Barriers

The *Initiative* aims to increase the total installed solar capacity in Maryland, Virginia and DC, create local jobs, drive down electricity prices, and reduce transaction and administrative costs by up to 75 percent for individual participants. As of January 2012, 20 organizations, including six higher education institutions, 13 public agencies and one hospital system, totaling over 176 sites and 42 megawatts in solar PV capacity have joined the Initiative. Only sites with the technical and economic capacity, as determined through the feasibility study, will progress to the next phase of the Initiative, issuing a collaborative RFP. Currently, 57 sites are entering the collaborative procurement stage.

The *Initiative* has faced several barriers to success, namely assessing how to make the project economically attractive to potential sites. Within the Northern Virginia region, electricity prices are low and there is a lack of comprehensive solar incentives. However, once several sites within the region signed onto the project and conducted their initial assessments and potential for energy savings, they have generated high visibility and interest in pursuing this *Initiative*.



Solar Panels at FedEx Field.

Photo Credit: MWCOG

Lessons Learned

Through collaborative procurement, the *Metro DC Clean Energy Collaborative Procurement Initiative* has created a pathway for stakeholders that otherwise could not or would not pursue solar and is developing an effective and collaborative platform for developing clean energy in the metropolitan Washington, D.C. region. Collaborative procurement initiatives can be replicated in any region with interested stakeholders:

- Take time to develop your plan;
- Ensure an understanding of the different procurement procedures of local governments, educational institutions and the federal government before acquiring funding;
- Upfront costs will be more than offset by resulting increased economic performance of the solar solutions deployed; and
- Collaborative procurement requires low startup costs associated with conducting the detailed technical and economic analyses for each site under construction.



Metropolitan Washington
Council of Governments

Metropolitan Area Planning Council: Regional Solar Initiative

Greater Boston, MA region
Population: 3.15 million
Size: 1,422 square miles
www.MAPC.org

Celebrating its 50th anniversary in 2013, the Metropolitan Area Planning Council (MAPC) was created by the Massachusetts State Legislature to serve as the regional planning agency for the people who live and work in the 101 cities and towns of Metropolitan Boston. The region is grouped into eight subregions, whose communities span Greater Boston, coastal communities, older industrial centers, rural towns and modern cities. MAPC's mission is to promote smart growth principles and regional collaboration, while working toward sound municipal management, sustainable land use, protection of natural resources, efficient and affordable transportation, a diverse housing stock, public safety, economic development, an informed public, and equity and opportunity among people of all backgrounds. A critical component of MAPC's mission is to advance equity and cultural competency both internally and in work throughout the region.

MAPC and Solar

Prompted by member interest and requests, MAPC's Clean Energy division provides a range of technical assistance services to its member cities and towns, including comprehensive energy planning as well as project-specific guidance, with the goal of advancing markets for clean technology while reducing greenhouse gas emissions and dependence on fossil fuel consumption in the Commonwealth. As part of this work, MAPC undertakes regional energy projects that help communities get lower pricing and better quality of service by bringing them together to obtain energy-related goods and services. One current project is the Regional Solar Initiative.

In 2008, the Massachusetts State Legislature enacted the "Green Communities Act," which boosts energy efficiency and encourages investment in renewable energy by providing for a statewide structure around clean energy technologies and activities. As part of the Renewable Portfolio Standard (RPS) requirements set in place by the Act, the State carved out a portion to specifically support distributed solar photovoltaic facilities, increasing incentives for these projects across the Commonwealth. MAPC has been involved with advising the regulatory implementation of the Act since the beginning, and continues to serve on a Green Communities Advisory Committee convened by the State.



Credit: MAPC

For MAPC, the *Regional Solar Initiative* began to germinate in 2011, when the organization brought together six communities to begin thinking about opportunities for renewable energy development and to secure a preliminary site assessment of renewable energy potential on their closed municipal landfills and underutilized lots. MAPC solicited quotes from vendors on a Massachusetts statewide contract, and contracted with Meridian Associates to conduct a Fatal Flaw analysis for potential commercial wind and ground-based solar photovoltaic (PV) on seven sites identified by the participating communities. The assessment determined that each community had the potential to develop PV projects on these sites.

In 2012, in order to help these and other communities move forward with potential local solar projects, MAPC created a Regional Solar Initiative that combines group procurement with peer learning opportunities. Seventeen cities and towns expressed interest in participating in this initiative to consider both rooftop and ground-based PV sites. MAPC hired the Cadmus Group to help develop a Request for Qualifications (RFQ) for qualified solar developers to provide solar energy management services (EMS) that could help each of the communities explore and advance local solar projects. The ability to procure these services through a streamlined path was established as part of the Green Communities Act, allowing communities to package design and construction into a single solicitation for energy project(s) with a performance guarantee.

Solar EMS contracts are long-term (up to 20 years) service agreements that include: PV system design, financing, and installation; operations, maintenance, and PV system removal; long-term lease of public space; electricity generated by a PV system; and, a system performance guarantee. A community entering into a solar EMS contract is responsible for hosting the PV system on a municipally-owned site, and purchasing all the electricity generated by the PV system. The benefit to the community is a long-term guarantee for solar energy production at a determinate price schedule without the risks of ownership. The developer owns the PV system and generates revenue by selling electricity to the community and monetizing the tax incentives and Solar Renewable Energy Credits (SRECs) associated with solar electricity generation.

In addition to managing the EMS RFQ process, which included convening a municipal Selection Committee of municipal representatives to evaluate proposals, and facilitating interviews for top-ranked developers, MAPC also held workshops and informational sessions to educate the participating communities on the developer contracting process for municipal solar projects before the solicitation process was completed.

MAPC received 14 responses to the RFQ for solar developers, and the municipal Selection Committee identified and selected a single company, Broadway Electrical, for the regional program. Upon selection, MAPC entered into a Memorandum of Understanding (MOU) with Broadway Electrical that spelled out expectations for the program and minimum requirements to enter into individual agreements with the municipalities. As each community proceeds with their individual solar EMS contract, MAPC is strongly recommending that each city or town additionally contract with an independent “Owner’s Agent”/consultant to represent their interests in technical and financial discussions and negotiations.

As the municipalities move forward with solar project development in 2013, MAPC will support solar EMS projects by providing contract development assistance for member municipalities, as well as education for vendors on how to develop more competitive responses to future RFQs. Examples of resources made available by MAPC include: Frequently Asked Questions on solar EMS Contracts and a PowerPoint on “Solar Contracting Basics”. MAPC continues to provide contract guidance, model contract documents and technical support, including possible roundtable legal discussions for the contracting phase.

Lessons Learned

MAPC’s work identified several lessons learned:

- Neutral convening of interested stakeholders is critical for educational purposes and for broad-scale procurement activities;
- Leveraging economies of scale provides group purchasing power and makes for a more attractive solicitation for vendors;
- Establishing one point of contact through the regional planning organization allows for easy communication and feedback with the vendor, particularly for refining activities for future work;
- Streamlining solar RFQ requirements would help provide for a closer match up to vendor capabilities;
- Determining if the scope of work for a regional program would best be met through a single or multiple vendors is a key question to be addressed in the selection process, with no cookie-cutter answer;
- Engaging legal review early in EMS solar contracting would help determine risks, liabilities, roles and responsibilities;
- Pairing together education and outreach efforts with an implementation tool, such as group procurement, is a good model for advancing procurement activities;
- Connecting communities working on the same or similar projects helps promote solar throughout the region;
- Engaging the vendor community to learn about their processes and expertise is important to educating the communities and establishing trust;
- Determining if a single contract mechanism used by multiple municipalities to limit the legal activities and backend contracting required would be a worthwhile endeavor for both the communities and vendor;
- Ensuring the procurement vehicle is flexible to the market demands and capabilities; and
- Gearing the marketing of such opportunity to solar vendors is important to gain the correct exposure and interest (for example, MAPC marketed to the Northeast Sustainable Energy Association).



Mid-America Regional Council: Solar Ready KC Initiative

Greater Kansas City, MO region
Population: 1.9 million
Size: 4,400 square miles
www.MARC.org

Since 1971, the Mid-America Regional Council (MARC) has promoted regional cooperation and developed innovative solutions for the Kansas City bistate region. MARC's region encompasses nine counties and 119 cities, including Cass, Clay, Jackson, Platte, and Ray counties in Missouri, and Johnson, Leavenworth, Miami, and Wyandotte counties in Kansas. MARC is the metropolitan planning organization for the bistate region, providing cooperative purchasing, professional development training, research, emergency services, workforce development, environmental and energy programs, and additional services to their local governments.

MARC and Solar

Local governments in the Kansas City region, like many other regions across the nation, have a wide variety of policies and processes related to solar energy usage. According to *Freeing the Grid: Best Practices in State Net Metering Policies and Interconnection Procedures*, inconsistency is the enemy of clean energy development. It creates customer confusion, undermines renewable energy development and increases costs.

In 2012, the U.S. Department of Energy (DOE) announced the *SunShot Initiative Rooftop Solar Challenge* project, which aimed to achieve measurable improvements in market conditions for rooftop photovoltaic (PV) nationwide. Based on the needs of the Kansas City (KC) region to reduce the inconsistencies in their permitting and planning processes, MARC formed a partnership with a consortium of city and county governments, Kansas City Power & Light (KCP&L) and solar industry experts to respond to the Rooftop Challenge project.

Since 2009, MARC has taken the lead in planning for energy efficiency, conservation and renewable technologies in our region. Over these four years, the conversations have been rich in developing strategic alliances, identifying best practices and positioning the region for future advancements through regionally consistent codes, processes and policies. These solar market improvements are one of the most illustrative of how regional planning councils have an important role to play in assisting local governments in the implementation of innovative practices.

– David Warm, Executive Director, MARC

MARC's project, formally called the *Solar Ready KC Initiative*, sought to establish best management practices (BMPs) to streamline permitting and planning processes, offer training sessions to broad and diverse audiences, conduct a financing options inventory and recruit additional jurisdictions to join the project. The *Solar Ready KC Initiative* also aimed to provide local government representatives with the latest information and best practices to prepare for policy and market changes and to position their communities and the region for this new renewable energy economy.

Solar Ready KC identified BMPs in two categories: permitting process improvements and planning improvements. Permitting process improvements (standardized permit fees, incorporating utility notification) are one of the fastest and most effective methods to facilitate solar installations. Planning improvements help organize and emphasize a jurisdiction's support of a building owner's right to use solar. Removing local ordinance barriers, adopting facilitating codes, encouraging solar readiness and incentivizing solar acceptance in new development fosters a community that supports individual choice.



Solar Ready KC's BMPs include:

- Streamline permitting - creates a permit checklist summarizing the necessary regulatory steps and develops critical permit outlining thresholds for standard installations and streamline permitting processes accordingly.
- Standardization of permit fees - recommends a fixed fee based on cost recovery for residential PV permit applications and provides the PV Permit Fee Calculator for commercial rooftop systems.
- Notification of utility - recommends a notification process when permit applications are received and electrical inspections are complete, and to conduct joint inspections with local utility and jurisdictions.
- Pre-qualify plans and installers - recommends the development of a process for pre-qualification of standard plans and a process for pre-qualification of installers.
- Improvement of solar access - recommends the incorporation of solar access priorities in comprehensive plans and the adoption of solar access ordinances.
- Improvement in solar readiness - recommends the development of a solar ready building checklist for new construction and adoption of new ordinances / building codes to promote solar ready construction.
- Engage developers and homeowners associations - create incentives for the adoption of BMPs.

Local governments can commit to different levels of the BMPs according to the immediate needs, timing of policy reviews, etc. Introducing a non-binding resolution that can be adopted by city councils or board of commissioners is a simple step that endorses the concept of the solar best practices, while also documenting support for the region-wide effort. Overtime, consistency will be achieved, as cities and counties implement the various permitting and planning practices.

Successes & Lessons Learned

The following are a few lessons learned from the *Solar Ready KC Initiative*:

- Provide central information source for potential solar customers;
- Create a permit checklist summarizing the process to obtain all necessary permits;
- Incorporate solar access priorities in comprehensive plans;
- Provide tools for new developments;
- Provide homeowner associations with recommended strategies; and
- Create incentives for the adoption of best practices.

More information on MARC's Solar Ready KC Initiative can be found here: http://marc.org/Environment/Energy/solar_ready_kc.html.



Tour of solar panels at Kauffman Stadium.

Credit: MARC