

A Little Co-op and How It Grew

This is a story about two determined teenage boys, a politically savvy mom and the movement they created that has put solar arrays on dozens of roofs in the urban heart of Washington, D.C.

The Mt. Pleasant neighborhood lies 2 miles north of the White House. It's a middle- and working-class neighborhood of old row houses, most dating from the early 1920s. About 100 of these houses — roughly one-tenth — now have grid-tied solar systems. Half a dozen other D.C. neighborhoods have emulated this success.

Once Upon a Time

In September 2006, after attending a screening of Al Gore's "An Inconvenient Truth," best friends Diego Arene-Morley and Walter Lynn — then 12 years old — sat at a kitchen table with Diego's dad, Jeff Morley, and Walter's mom, Anya Schoolman. They wanted to know how global warming would affect them and what they might do about it. "Can we go solar?" Walter asked.

Anya replied, "We already looked into solar. It's expensive and really complicated. If we are going to do all the work to figure this out, we might as well do the whole neighborhood. Are you guys in?"

They were. Thus, the Mt. Pleasant Solar Co-op was conceived. Anya had the experience to launch the movement. After earning a master's degree in international relations and environmental policy at Columbia University's School of International and Public Affairs, she held senior policy positions in the U.S. Department of the Interior and went on to advise foundations and nonprofits on environmental strategy and program design.

A few neighbors joined the co-op right away and the group developed a strategic plan:

- Sign up every neighbor interested in going solar;
- Find an installer willing to offer the group a big discount;



(From left) Mt. Pleasant Solar Co-op founders Jeff Morley, Diego Arene-Morley, Walter Lynn and Anya Schoolman spoke at the Solarama expo in September 2009.

Making a Co-op Work

People want to go solar because it's in their best interests to do so and they contact us because our mission is to help them. They want control over energy costs for the same reason they want a fixed-price mortgage. In Washington, D.C., our electric bills increased 41 percent over the past five years (from July 2005 to July 2010). Small businesses and nonprofits need to stabilize their energy costs just to stay afloat.

Set goals. Make solar energy accessible to all, reduce the costs and remove the barriers. Costs are coming down anyway, but group buying provides efficiencies of scale and helps installers deal more effectively with permitting agencies.

Create an organizational structure to support the mission. We're registered as a co-operative under D.C. law. Unlike 501 (c) (3) organizations, we don't raise funds, manage, govern or report to the IRS. But we can lobby.

Find a good web developer. The website is an indispensable communication tool. It not only gets the word out, but it helps to pool resources and avoid duplication of effort. Sample our sites: mtpleasantsolarcoop.org, solardc.blogspot.com, sites.google.com/site/capitolhillenergycoop/, georgetownenergy.com

Participation is voluntary. People do what they're comfortable doing. We have few meetings and don't browbeat those who don't show up. We avoid asking for money, unless it's for something concrete like our co-op yard signs.

Energy and information flow in both directions. Few come to the co-op knowing a lot about renewables or going solar. It's easy to go to our periodic meetings and ask questions of those who've been there and done it.

Start small and focused, but broaden the base. Now that we've succeeded with homeowners and have expanded our political clout into other neighborhoods, we can focus on the energy issues faced by renters, multifamily buildings, small businesses and nonprofit organizations.

Share expertise. We don't exercise control over sister co-ops, but we share what we learn and act collectively in the political arena.

In Washington, D.C., a group of neighbors banded together to win the fight for residential solar.

By **ROBERT ROBINSON**

- Identify friends in government and business and environmental organizations willing to support legislation to create a rebate program; and,
- Start installing those panels.

It wasn't that simple, of course. At the time, photovoltaic (PV) arrays were installing for about \$8 per watt, or about \$24,000 for a 3-kilowatt (kW) residential system. With no federally or locally funded rebate programs yet in place and electricity retailing at about 14 cents per kilowatt-hour, it looked as if the payback period might be 10 years. And it was questionable whether the neighborhood's 85-year-old roofs would bear the load of solar arrays without substantial structural and water-sealing work. The few solar installers who had experience with the flat roofs on Washington row houses weren't sure they *wanted* to install in the city. Finally, political support for local legislation to provide cash rebates for solar systems got shaky when rumors began circulating in the Council of the District of Columbia (the Council) that only rich, tree-hugging homeowners wanted solar panels.

Anya Counseled Us to Take Baby Steps . . .

Diego and Walter leafeted the neighborhood with adolescent zeal. Two hundred members signed up and provided electric consump-

tion data. Members then conducted energy audits and began conserving electricity. Walter and Diego ran comparison tests and identified the most efficient and dependable compact fluorescent lights (CFLs). Keith Ware, owner of Eco Green Living, sold us \$3,000 of these CFLs below cost and we all went on an efficiency binge.

Anya climbed up and surveyed more than 70 roofs. Installer Chris Graves, of Switch Energy, ran financial *pro formas* that showed, given expected federal incentives and renewable energy credits, a payback period less than six years (see table). Legal firms Skadden, Arps and Kaye Scholer stepped up with *pro bono* legal services on regulatory, legislative, liability and contracting matters.

The District of Columbia already had a renewable portfolio standard (RPS), established in 2005. Anya lobbied relentlessly with the Council for solar renewable energy credits (SRECs), with the result that they were included in Councilmember Mary Cheh's Clean and Affordable Energy Act of 2008 (CAEA). CAEA expanded the RPS (it now calls for 20 percent renewable by 2020, with a 0.4 percent solar carve-out and high alternative compliance payments). The law also created a Renewable Energy Incentive Program (REIP), providing a \$3-per-watt rebate for small renewable energy systems funded at \$2 million per year from

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2010 Estimated Costs/Benefits for a 3-kW Solar PV System via the D.C. Renewable Energy Incentive Program

Expenditure/Revenue Elements	Up-Front Sale of SRECs*	Annualized SREC Payments*	No Sale of SRECs*
Return-on-investment (break-even year)	Year 1	Year 2	Year 3
Total 3-kW system cost	\$18,000	\$18,000	\$18,000
REIP cash rebate	-\$9,000	-\$9,000	\$9,000
Up-front SREC sale	-\$5,400
Other payments	...	\$1,200 per annum	...
Actual costs to applicant	\$3,600	\$9,000	\$9,000
Federal tax credit (30%)	\$5,940	\$5,940	\$5,940
Energy savings (\$1,500 per year + 7% annual increases)	\$1,500	\$1,500	\$1,500
Annual revenues after break-even year	...	\$1,200 per annum	...

* Solar renewable energy credits

Policy Goals

Program implementation and access. Most of the federal funding for renewable programs is targeted to large utility-scale and commercial programs. We prefer that the benefits of solar be widely dispersed to directly help struggling homeowners, businesses, churches and nonprofits.

Instead of offering grants only to commercial entities going solar, the federal government should make the 30 percent federal tax credit available as a grant to any entity that wants to go solar, including private individuals and especially nonprofits like churches and community-based organizations.

We need a national solar-garden or virtual net-metering bill, requiring utilities nationwide to allow any citizen to get a credit on their bill for a solar panel they own anywhere in their billing area. Doesn't matter if it's on the roof of a corporate-owned warehouse, a family owned barn, a big box store or a church.

Focus funding on end-users. Our greatest frustration came from watching millions of dollars in renewable energy surcharges we paid on our utility bills get expropriated by local government to fill budget gaps elsewhere. People don't mind paying a surcharge on their electric bills if the money is going to be used to provide solar power and create green jobs for the community!

How to Start a Solar Co-op

Get started with online and local resources.

Find out what the U.S. Department of Energy (DOE), solar co-ops, solar gardens and community solar are doing:

eere.energy.gov
 mtpleasantsolarcoop.org
 solargardens.org
 nwseed.org

To learn about the laws and programs applicable in your community, go to the Database of State Incentives for Renewables and Efficiency, dsireusa.org. The website also lists local officials responsible for administering these programs. This is an invaluable contact list.

Find out about your local interconnection and net metering policies at the Interstate Renewable Energy Council site, irecusa.org.

Ask your electric utility and public utility commission (PUC) if they offer programs to install solar energy on homes, multifamily buildings and businesses. Make sure you know who to go to if you are in a dispute with the utility. Is it the PUC, a consumer advocacy office, a people's counsel or something else?

Calculate your potential solar energy production by going to redc.nrel.gov/solar/calculators/PVWATTS/version1/.

Meet with potential co-op members

and decide what organizational structure is right for you and file with the state or local government. Explore getting *pro bono* legal representation to help you adopt an organizational structure and get you up and running. Remember: If you organize as a 501 (c) (3) nonprofit corporation, you can raise money, but you must file annually with the IRS and *you may not lobby*.

Go to work.

- 1) Have co-op members collect their monthly bills and become familiar with their usage patterns and costs for the past two years.
- 2) Urge them to get energy audits (some jurisdictions offer them free of charge) and initiate efficiency measures to improve the performance of insulation, window and door sealing, HVAC, appliances and lighting.
- 3) Visit FindSolar.com to obtain a list of solar installers in your area.
- 4) Contact licensed and bonded roofers to assess the readiness of your members' roofs to support thin-film or solar panel photovoltaic systems.

5) Work with local officials responsible for administering incentive programs to help your co-op and installers understand how to comply with the application, permitting and interconnection processes.

- 6) Explore with your co-op and legal advisers what benefits of membership you can provide immediately and over time, including:
- information sharing between members;
 - buying power/economies of scale/negotiations: with solar installers, roofers, panel manufacturers, other renewable and efficiency equipment suppliers;
 - building your co-op's political muscle to improve and extend funding and support for renewable energy incentive programs; and,
 - using that muscle to push for more solar-friendly programs, policies and rules.

Develop an organizational infrastructure, including:

- a detailed database to help you capture information about potential and current members,
- a co-op website, and
- a media contact list including local, state and trade media.

utility-bill surcharges. It really helped when federal rules removed the caps on rebates to permit them to cover 30 percent of the total cost of a solar install.

At last, we had a rebate program in place! Installations went forward. Creative ways were found to deal with structural issues — for instance arrays could anchor on the load-bearing “party walls” between adjacent (and connected) homes.

By September 2009, we celebrated our first 50 systems with a 12-home solar tour and a Solarama festival to promote our installers and related businesses. Two months later, the co-op formalized relationships with solar installers and neighborhood job trainers to stabilize REIP funding for green-collar jobs.

The program grew. Anya helped to organize sister co-ops in the Capitol Hill, Georgetown, Petworth, Shepherd Park, Palisades and Ward 8 neighborhoods (this would give us a wider base of political support). Articles on the co-op appeared in the *Scientific American* blog, Grist and CNBC blog. The Discovery Channel produced a program called “Powering the Future, Leading the Charge,” featuring the co-op. By the close of 2010 we watched the completion of our 100th solar installation in the Mt. Pleasant neighborhood.



The co-op's first installation was built by Standard Solar for Tom Kelly (foreground). He's talking with electrician Amacire Bocoum.

Pepco (originally the Potomac Electric Power Co.), to install meters that would measure current in both directions. Until those meters come online, systems that produce more electricity than the home uses produce exaggerated bills. The old meters don't calculate negative numbers — all electric flow is additive. Since solar inverters track our electric production but not consumption, and the old meters track our consumption but not solar electricity passing back to the grid, our monthly bills are all but unverifiable.

As utilities move toward “critical peak” pricing, net-metering debates return. Why assess transmission and distribution charges for surplus PV power, if it will reduce peak load and if it's not being “wheeled” to other distribution circuits?

Meanwhile, Pepco received \$149.4 million in federal stimulus funding for smart grid design. We want to see the company incorporate renewable-friendly standards and best practices regarding net-metering and solar credits, such as those proposed by the Interstate Renewable Energy Council. This effort may require some years of adversarial processes before the PSC, unless national or local legislation is enacted to set policies supportive of distributed generation. 57

There have been bureaucratic and political problems. We have had to work vigilantly with the members of the Council to keep the city government from hijacking REIP funds to spend on other programs. In the spring of 2010 we conducted two lobbying offensives to recover program funding and hire staff to clear the backlog of REIP applications for FY 2010 and 2011.

Utility Issues

The 2008 action by the Council also established a net-metering requirement, but the Public Service Commission (PSC) didn't issue final rules until June 2010. So co-op members waited month after sunny month for the utility company,