

Fort Collins, Colorado



Fort Collins

Photo: City of Fort Collins, CO

CASE STUDY

SOLAR
OUTREACH



PARTNERSHIP

Fort Collins, Colorado

The City of Fort Collins, which enjoys more than three hundred days of sunshine a year, is situated along Colorado's Front Range. The city has a population of nearly 150,000 and an area of more than fifty square miles.¹ Fort Collins operates under the council-manager plan; city government employs nearly 1,300 staff, and the annual budget is \$485 million.

Fort Collins is located in a state with one of the strongest renewable portfolio standards in the nation. A number of additional factors have created a desirable environment for the development of solar photovoltaic (PV) systems: strong public advocacy for renewable energy policies and practices; the city's council's willingness not only to listen to citizens, but to collaborate with the local electric utility in the development of solar incentives and programs; and city ownership of the utility.

The single biggest challenge to solar development in Fort Collins was financial—but financing and incentive programs, along with a streamlined permitting process, have helped to bring down the cost of solar PV. Beginning in 2009, programs implemented by the utility—in particular, the Solar Rebate program—led to a dramatic increase in solar PV installations.

Community Activism and Stakeholder Collaboration

A notably progressive community, Fort Collins has become increasingly interested in embracing cleaner technologies—not only as a means of cutting greenhouse gas emissions, but as a means of creating high-value jobs. In a municipal decision-making context, community support for renewables and energy efficiency are key to successful implementation. In fact, the community of Fort Collins has nurtured a culture of sustainability for decades—as reflected in the city's Local Action Plan to Reduce Greenhouse Gas Emissions, adopted in 1999.

In November 2004, the State of Colorado established the nation's first statewide renewable energy standard (RES) by ballot initiative vote. Other statewide RES laws in the U.S. were put in place through state legislator sponsored bills. Under the Colorado RES, municipal utilities serving more than forty thousand customers

City Profile

- Form of government: Home-rule city operating under the council-manager plan
- Population: 143,986
- Area: 54.28 square miles
- Number of local government employees: 1,290 (full-time equivalent)
- Major departments: Utilities, Building Services, Office of Sustainability Office
- Annual budget (2013): \$484.9 million
- Type of electric utility: Municipal utility; not regulated at the state level.

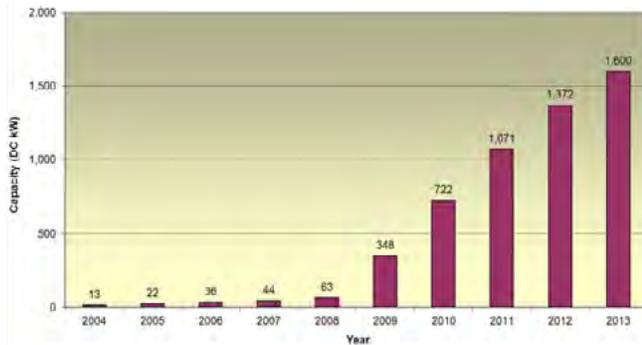
are required to generate or purchase enough renewable energy to supply 10 percent of their retail electric sales by 2020. Until 2008, Fort Collins was pursuing this goal mostly by purchasing wind-based renewable energy credits (RECs), which help finance the renewable energy market by allowing customers to purchase a claim to energy generated by renewable energy facilities.

In 2008, Fort Collins residents began advocating for the city council to expand the city's mix of renewables—specifically by creating incentives for solar. Recognizing that the development of solar PV could help achieve local and state energy goals, the city council made available solar PV rebate funds through Fort Collins Utilities (henceforth "Utilities"). The Fort Collins community immediately began to take advantage of the rebate program: between 2008 and 2009, Utilities saw a 450 percent increase in installed PV capacity (see figure 1); and between 2009 and the second quarter of 2013, solar PV capacity increased from 348 kilowatts (kW) to 1,600 kW.

City Financing Mechanisms and Solar Programs Promote Solar

As in most of the nation, up-front costs make solar prohibitive for many homeowners and businesses in Fort

Figure 1. Cumulative installed photovoltaic capacity, Fort Collins service area (2004 through second quarter of 2013).



Collins. Federal incentives help mitigate these expenses, but Fort Collins residents and elected officials saw that more was needed. To create incentives for solar PV, the city has established several programs - a solar rebate program, on-bill financing, a community solar garden (CSG) program, and a feed-in tariff (FIT) program.

Solar Rebate Program

With strong interest and support from the community, the city considered several financing mechanisms to address the up-front costs of solar PV—and, more broadly, to meet the goals articulated in its [Energy Policy](#) and [Climate Action Plan](#). The Climate Action Plan builds on the efforts of the Local Action Plan adopted in 1999 but it’s not explicitly an update. The Energy Policy is completely separate from the 1999 Local Action Plan and Climate Action Plan but supports the city’s greenhouse gas reduction goal. The primary goals of the city’s energy policy are

- to sustain high electrical-system reliability;
- to contribute (1) to the community’s climate protection goals and (2) to the economic health of Utilities’ Light and Power Service Unit.²

The city’s net-metering program, which allows excess electrical power generated on the customer side of the meter to be sold back to offset electric usage,

Leasing as a Financing Option

The option to lease solar installations is making solar photovoltaic systems more accessible by spreading out payments and making them more affordable. In 2012, more than half of the systems installed in Fort Collins were leased.

was piloted in 2005 and formally adopted in 2009. With net-metering in place, the city established the Solar Rebate program in 2008 for residential and small commercial PV systems, under which electricity generated through PV was purchased by Utilities at full retail. In 2013 and 2014, the city allocated \$250,000 each year for the rebate program, which supports approximately thirty new PV projects annually, with a combined capacity of 125 kW. This popular program is always fully subscribed, often with a waiting list, and has generated more than two hundred PV systems in the past five years. The following are the key features of the program:

- Residential systems may be sized between 500 watts (W) and 10 kW; commercial systems can have capacities of up to 25 kW.
- Rebate amounts are based on \$1.75/w twenty-year REC purchase.
- Rebates for residential are \$1.75/W, for up to 3 kW; rebates for commercial are \$1.75/W, for up to 10 kW.
- Maximum rebates are \$5,250 for residential and \$17,500 for commercial.
- The program is administered by Utilities.

On-Bill Financing

The city chose on-bill financing—which allows homeowners to repay loans through installments on their utility bill—as another means of helping with up-front costs and providing an incentive for solar PV. Utilities initiated



The Innosphere project includes a 44-kilowatt photovoltaic (PV) system installed on the carport. The owner of this office building used the commercial PV rebate to help fund the project in 2011. Photo Credit: City of Fort Collins

pilot on-bill financing in November 2012 for residential customers participating in the Home Efficiency³ or Solar Rebate programs. Eligible applicants may receive loans of between \$1,000 and \$15,000 (funded through Utilities' reserve fund), which can cover up to 100 percent of the project cost. Utilities partnered with [EnergySmart Partners, LLC](#), a community financial organization, to administer these low-cost loans.

Community Solar Garden and Feed-in-Tariff

In its continuing effort to expand the role of renewable resources in the community's energy mix and to encourage the adoption of solar PV, the city is offering two new incentive programs: a CSG program and the Fort Collins Solar Power Purchase Program (FCSP3), a feed-in tariff program. Both programs are intended to meet the goals of the city's Climate Action Plan, as well as those of the state RES. The RECs generated by these installations carry a "3x multiplier benefit"—meaning that the solar energy they produce counts three times toward the RES obligation, which puts the price of solar RECs on a par with those for wind. The multiplier is an important factor, because although 6 percent of retail electric sales in Fort Collins are from renewables, less than 1 percent of those sales are from solar.

The CSG program will expand small-scale PV options for utility customers who do not have favorable sites for rooftop solar. The city has issued a request for proposals to develop, in concert with commercial partners, a 250 kW project on city property. Under the CSG program, residential and business customers will be able to buy into the project and receive incentives comparable to those for rooftop PV systems.

The objective of FCSP3 is to create incentives for the installation of 4 to 5 MW of solar capacity. Under this program, Utilities will enter into a twenty-year power purchase agreement (PPA) with commercial customers for solar projects that are within Utilities' service area and sized between 10 and 1,000 kW. The energy output of the installations will go directly to Utilities' electric grid, and customers will be paid on the basis of their PPA. The PPA, in turn, will convey the RECs to Utilities, which will use them to meet Colorado's RES. The 3x multiplier benefit helped facilitate the city council's decision to establish the program, which will require a \$20 million commitment over twenty years (\$1 million/year), to be funded by a 0.5 percent increase in electrical rates in 2013 and in 2014.

Community activism was a key driver behind FCSP3. Community members approached the city council about establishing a FIT program, which local residents



The city used American Recovery and Reinvestment Act funding to install 6 kilowatts of photovoltaics on the roof of a city office building. Bella Energy installed the system in 2010. Photo Credit: City of Fort Collins

strongly preferred to the option of buying into wind projects. In response—and with the guidance of the [Colorado Solar Energy Industries Association](#) (COSEIA)—the city embarked on an extensive stakeholder involvement effort, which included public meetings and meetings with the installer community. Since January 2013, Utilities has been accepting feedback from installers and customers to help finalize the requirements of the program. Table 1 summarizes the key attributes of FCSP3.

A Key Partnership and a Recognition Program Spur Changes

The [Solar Friendly Communities](#) (SFC) project—an effort led by COSEIA, in partnership with Boulder County; the cities of Denver, Fort Collins, and Golden; the [Rocky Mountain Institute](#) (RMI); and the [American Solar Energy Society](#)—was established to promote rooftop solar by streamlining local government permitting processes, and thereby helping to bring down the soft costs (e.g., marketing, permitting, inspection, and installation) associated with solar. SFC is one of twenty-two Rooftop Solar Challenge programs funded across the nation through the U.S. Department of Energy's SunShot initiative.

An SFC guide, "12 Best Practices: A Roadmap to a Solar Friendly Community" helped Fort Collins focus its efforts. In the course of stakeholder meetings (which were attended by solar experts and RMI staff, among others), the city identified modest changes that would require neither major overhauls nor political commit-

Table 1. Fort Collins Utilities’ Solar Power Purchase Program: Key Attributes.

PROGRAM ATTRIBUTE	PURPOSE/BENEFIT
Projects will be located on the premise of Fort Collins Utilities’ commercial customers	Local economic benefit, reduction in transmission line losses
Solar photovoltaic (PV) systems range in size from 10 to 1,000 kilowatts (kW)	Diversity of project sizes
1,000 kW maximum aggregate capacity on any single parcel	Diversity of participating customers
2,000 kW maximum capacity for a single commercial entity for multiple parcels and projects	Diversity of participating customers
Grid interconnection “in front of the customer meter” (achieved by actual point of interconnection or billing adjustment)	<ul style="list-style-type: none"> • Predictable long-term cost for ratepayers (as approved in City budget) • Avoids risk to ratepayers of having a net metering hedge for participating customers • Higher energy payment to participants
Power Purchase Agreement (PPA) between Utilities and system owner	Customer benefit, alignment with Platte River Power Authority service agreement
Payments made are for actual production via separate metering on the solar system	Pay for performance
25 percent of funds reserved for systems sized between 10 and 100 kW (applications in the small and large system categories will be handled as separate groups)	Diversity of project sizes
Two-tier 20-year, fixed-price standard offer 18¢/kWh 10 kW-100 kW 15 ¢/kWh >100 kW to 1,000 kW * (Pricing may be subject to further analysis)	Recognizes economies of scale
Utilities retains Renewable Energy Credits (RECs)	Commitment to meet Colorado RES
Applications will be accepted on a modified first-come, first-served basis	Fair selection process

*Pricing may be subject to further analysis.

Source: Fort Collins Utilities’ Solar Power Purchase Program Fact Sheet; 8/6/2013; http://www.fcgov.com/utilities/img/site_specific/uploads/Solar_Power_Purchasing_Fact_Sheet.pdf

ments, but that would have significant impact. For example, the city ensured that solar standards were clear, and posted them online for easy access. As Norm Weaver, of Utilities, noted, “Solar Friendly Communities and the 12 Best Practices really helped focus where we could make improvements,” saving time for both the city and the installers: it was “a win-win situation.”

Using the “12 Best Practices” guide also enabled the city to open communication between the departments that were responsible for administering solar program and processes—specifically, Utilities and Building Services. This dialogue helped city staff determine which improvements would be most beneficial. For example, it was through the “12 Best Practices” guide that building services staff, who are responsible for permitting and inspections, learned about the *Expedited Permit Process for PV Systems*

(often known as the “solar ABCs,” because it was developed by the Solar America Board for Codes and Standards), which the guide offers as an option for implementing a standard permit form.

Recognizing the benefits of the standard permitting package, building services staff adopted it to expedite permitting. Before the adoption of the permitting package, applicants would receive solar PV permits in two to three weeks; although there is no guaranteed turnaround time, the city’s goal is to issue permits within three days. Regarding inspections, the city guarantees next-day scheduling within a half-day window (morning or afternoon). (The accompanying text box provides more detail on Fort Collins’s implementation of best practices.) As Clara Burnham, of Burnham and Sun, a local installer, commented, “Always, permit and rebate applications take time and effort, but solar kudos to



The Fort Collins Museum of Discovery project consists of a 36-kilowatt photovoltaic array. The system, which was installed by Namaste Solar in 2011, was funded by the Bohemian Foundation, through the city's solar rebate program, and through an American Recovery and Reinvestment Act grant. Photo Credit: City of Fort Collins

Fort Collins Utilities. They are very helpful and responsive in administrating solar rebates and net-metering programs. I also appreciate the concerted effort of Fort Collins Building Services and Utilities working together to help expedite the permitting process.”

In April 2013, the changes to its permitting process made Fort Collins eligible for gold-level recognition from the SFC Recognition Program—an achievement that requires at least 1,100 points out of a possible 1,600. One benefit of being certified as an SFC is that participating solar installers offer discounted services to residents and businesses; for example, in a community that has completed the SFC program, standard residential systems receive a \$500 discount.

Lessons Learned

In its effort to meet sustainability goals, Fort Collins has made significant strides to increase the role of solar PV in its energy mix. The lessons learned from these efforts may be applicable to other jurisdictions, especially those with municipally owned utilities.

- *Municipal ownership of the electrical utility was an advantage.* When it comes to solar-friendly actions such as installing smart meters, implementing rate changes, and creating and administering solar PV financing and incentive programs, municipally owned utilities are in a better position to respond to community needs and to direction from local officials.

- *Community support for renewables was crucial to municipal decision making.* Fort Collins is a progressive community whose residents are eager to embrace cleaner technologies; this characteristic, coupled with a responsive city council and a municipally owned utility, helped support the successful implementation of the city's solar PV programs.
- *The SFC program was a win-win experience for the city and installers.* Through the SFC program, Fort Collins learned about modest, high-impact changes that allowed the city to streamline its permitting process for little to no cost, and without substantial political commitment.
- *State policy facilitated solar-favorable actions.* Because the Colorado RES provides a 3x multiplier benefit for solar electricity generated within the territory of a municipally owned utility, local leaders could justify investing in solar programs such as CSG and FCSP3. The multiplier benefit put the price of solar RECs on a par with wind RECs—which had previously been the preferred renewable resource for meeting local and state energy goals.
- *Implementation of best practices fostered interdepartmental dialogue about the solar permitting processes.* With the assistance of COSEIA and RMI, the city opened communication between Utilities and Building Services, the departments responsible for administering solar programs and processes—which, in turn, helped city staff determine which improvements to the permitting process would be most beneficial.

Contact

Norm Weaver, senior energy services engineer, Fort Collins Utilities; 970-221-6700; nweaver@fcgov.com

Endnotes

1. Unless otherwise noted, all information in this case study was obtained through interviews with the individuals listed under “Contacts.”
2. The city adopted Colorado's statewide goals to reduce emissions, which call for a 20 percent reduction in greenhouse gas emissions by 2020, and an 80 percent reduction by 2050
3. Fort Collins' Home Efficiency Program helps homeowners reduce energy costs by offering low-cost energy and water audits, energy advisory services, and rebates.

Author

CIII Associates

How Fort Collins Achieved Gold Level in the Solar Friendly Communities Recognition Program

SOLAR FRIENDLY COMMUNITIES 12 BEST PRACTICES	HOW FORT COLLINS ACHIEVED THE BEST PRACTICE
1. Provide a checklist of all requirements for rooftop solar PV and solar thermal permitting in a single online location.	<ul style="list-style-type: none"> • Posted information on solar programs and rebates at www.fcgov.com/solar, which links directly to the web pages of Building Services. • In 2012, created the Office of Sustainability, which is directly under the city manager.
2. Offer a standard permit form that is eligible for streamlined review for standard residential or small commercial rooftop flush-mounted systems.	<ul style="list-style-type: none"> • Implemented the Solar ABCs to expedite the review process. • Implemented the Accela permit-tracking system to communicate about and resolve permit issues. Solar rebate application and processing are completely electronic. • Designated Building Services permit-counter staff as the single point of contact for installers.
3. Offer electronic or over-the-counter submittal and review options for standard systems.	<ul style="list-style-type: none"> • Decided not to pursue this best practice. There may still be historical or zoning issues that need to be addressed, which require may require more in-depth review.
4. Issue permits within a specified time frame.	<ul style="list-style-type: none"> • Established a target time frame of three days for solar permit review by Building Services.
5. Charge actual costs for permits and inspections with a cap on the total.	<ul style="list-style-type: none"> • Considering a cost cap on permits. • Accepts standard loading calculations for flush-mounted systems.
6. Replace community-specific solar licenses, if required, with standard certification for installers.	<ul style="list-style-type: none"> • For local trade licenses, accepts North American Board of Certified Energy Practitioners certification in lieu of a test.
7. Provide inspection checklist that explains unique requirements beyond applicable codes.	<ul style="list-style-type: none"> • Posted permitting requirements on the city's website. • Posted interpretations of the general code, existing codes, and inspection requirements at http://www.fcgov.com/building.
8. Specify a narrow time window for system inspection.	<ul style="list-style-type: none"> • Established next-day scheduling for Building Services inspections, with a time window for morning or afternoon. • Uses Accela online system to track permitting status.
9. For efficiency, require only one inspection for standard rooftop systems on existing homes or businesses.	<ul style="list-style-type: none"> • Established a policy requiring a single final inspection.
10. Adopt ordinances that encourage distributed solar generation and protect solar rights and access, including reasonable roof setback requirements.	<ul style="list-style-type: none"> • Designated rooftop solar as an allowed use for single-family residential construction in all zones; multifamily and commercial construction are subject to plan review. • Planning a community solar garden (budget item adopted for 2013–2014) and a feed-in tariff (FIT) program to support solar projects on commercial properties, including multifamily properties.
11. Educate residents on solar energy by providing information on financing options and projected economic benefit.	<ul style="list-style-type: none"> • Provides residents with information about solar through four websites: www.fcgov.com/REPS, www.fcgov.com/conserve, www.fcgov.com/homeefficiency, and www.fcgov.com/solar. • The Residential Environmental Program Series regularly highlights energy efficiency, including solar. The 2013 program includes presentation night for new solar programs. • For Collins Utilities offers on-bill financing for efficiency and solar projects.
12. Show your commitment to being a Solar Friendly Community by tracking community solar development, and provide tools showing solar access in your community.	<ul style="list-style-type: none"> • Provides a running tabulation of installed solar. Guidelines for the 2013 FIT will include a zoning map highlighting commercial properties that may be particularly good candidates for onsite solar. • The Climate Action Plan and the Energy Policy specifically mention renewables. The city budget for 2013–2014 includes rebates for small photovoltaic systems, commercial FIT, and community solar gardens.

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