

Gainesville, Florida



Photo: City of Gainesville, FL

Gainesville

CASE STUDY

SOLAR
OUTREACH



PARTNERSHIP

Gainesville's Feed-in Tariff Program

The City of Gainesville, located in the northern part of Florida, encompasses roughly 61 square miles and boasts a population of 124,354.¹ Gainesville operates under the commission-manager form of government, and has 2,200 employees and an annual budget of more than \$100 million.

Gainesville's [Solar Feed-in Tariff \(FIT\)](#) program is a leading example of the transformative impacts local governments and municipally owned utilities can have on community-wide adoption of solar technologies. Under the program, [Gainesville Regional Utilities \(GRU\)](#), which is municipally owned, purchases 100 percent of the energy generated by solar photovoltaic (PV) systems on residential or commercial properties. GRU purchases the energy at a fixed rate per kilowatt (kW) for a contract period of twenty years, thus providing an attractive investment opportunity and guaranteed rate of return.

The program's impressive results demonstrate the effectiveness of the approach. Since 2009, solar installations have increased from 328 kilowatts (kW) to more than 14,000 kW, a 4000% increase, and are on track to reach the intended goal of 32,000 kW by 2016. This rapid increase in solar energy generation has also diversified GRU's fuel mix: as of 2009, 1 percent of GRU's sources were renewable; by 2013, that figure had increased to 22 percent.

Gainesville's FIT program was the first of its kind in the United States and has served as a model for local governments across the country. The program owes much of its success to collaboration, and to the willingness of partners to embrace innovation in pursuit of community energy goals. As the costs of solar continue to decrease, local governments—especially those with municipally owned utilities—may benefit from Gainesville's experience in implementing their own FIT system.

Building on a Community Vision for Clean Energy

Gainesville has been pursuing the advancement of solar technologies for more than a decade. In 2003, when the city and GRU first recognized the need to diversify and expand the community's long-term energy supply, the



A residential 15-kilowatt solar installation using both net metering and feed-in tariff. (The two systems are not connected.) Photo: John Sheehy.

region was powered primarily by coal, a cost-effective but increasingly unpopular energy source that was viewed as inconsistent with the city's commitment to environmental protection. In 2004, under the leadership of newly elected mayor Pegeen Hanrahan, the city responded by (1) developing policies designed to increase energy efficiency and foster conservation and (2) exploring opportunities to increase the use of renewable energy sources, primarily solar and biomass.

One event that helped pave the way for Gainesville's FIT program occurred in 2006, when the city commission voted against the construction of any new coal- or petroleum-fueled power plants. The decision not only solidified the city's commitment to clean energy sources, but was also accompanied by a directive requiring GRU to identify feasible and reliable means of reducing electrical loads and meeting future energy demands. Being located in the Sunshine State, city and GRU officials saw the expansion of solar energy use as a particularly attractive option.

In 2007, GRU ramped up solar rebates and created a net-metering program to encourage residential and commercial installations. Although these strategies produced a slight increase in solar installations, both customers



A 105-kilowatt solar photovoltaic installation on a leased commercial property. Photo: Solar Impact.



A 665-kilowatt third-party leased solar photovoltaic installation on a United Trucking warehouse. Photo: Sybac Solar.

and GRU eventually recognized their drawbacks. For example, although rebates provided an incentive for smaller residential installations, caps on rebates reduced the likelihood of large installations, which would be needed to meet long-term energy goals.² Furthermore, by providing front-end rebates, GRU was effectively investing in solar installations without a guaranteed return of energy to the grid: because up-front costs were minimal and/or offset by the rebates, if an installation suffered damage, was poorly maintained, or was not performing at its highest level, property owners had little incentive to correct the issues.

Net metering also proved problematic for rented or leased properties. Under this approach, utility account holders receive a credit for solar energy produced that is in excess of what they consume. But because many large commercial properties in the region are leased rather than owner occupied, the long-term cost savings of installing solar would accrue to leaseholders rather than property owners; thus, the arrangement was not attractive to owners. Furthermore, the rate at which excess energy was credited was relatively low, resulting in a longer payback period and smaller return on investment. Finally, since net metering does not create cash flow, commercial property owners had difficulty obtaining financing for solar installations. Overall, commercial property owners viewed net metering as a disincentive, and it was not widely adopted.

Despite the challenges, the city and GRU remained committed to increasing renewable energy in the region; they also knew, however, generating the level of solar investment needed to reduce the region's reliance on fossil fuel would require a creative approach.

Finding the Right FIT

Gainesville's Solar FIT was inspired by (and largely based on) a model that was emerging from Europe at the time. While searching for strategies to make solar a more attractive and feasible community-wide choice, Ed Regan, GRU's assistant manager for strategic planning, got wind of Germany's FIT model, which seemed not only to eliminate many of the barriers associated with net metering but to provide additional benefits for consumers and the utility.

In October 2008, after having participated in a fact-finding tour to learn more about the FIT approach, Regan presented his findings to the city commission, which was intrigued, and asked GRU to explore the possibility of creating a similar program in Gainesville. Initial analysis was positive with respect to city and utility staff capacity, existing grid interconnection standards, solar permitting processes, and community support. In fact, a survey conducted during this phase revealed 70 percent public approval for the program, even though financing would require the addition of a small premium to consumers' monthly utility bills. On the basis of these findings, the commission passed an ordinance establishing the first solar FIT in the country. Buoyed by commission support and enthusiasm, Gainesville's Solar FIT program officially launched in March 2009, less than six months after the idea was first brought forward for consideration.

The initial goals of the program were as follows:

- Diversify Gainesville's energy supply portfolio
- Accelerate the deployment of solar technology in Gainesville

- Promote local job and economic growth
- Achieve renewable energy and carbon reduction goals.³

How does it work?

The critical selling point of an FIT program is that those who are typically considered energy *consumers*—such as homeowners and businesses—have the opportunity to become energy *producers*, generating and selling energy directly to their local utility. As noted earlier, participants enter into a contract with GRU stating that the utility will purchase 100 percent of the solar energy generated on site at a fixed rate for 20 years. The rates paid for the energy were established at a level that would enable participants to expect a 4 to 5 percent return on investment. The model has received overwhelming support from residents and businesses—and, unlike net metering, has proven especially attractive to owners of large properties.

Those interested in participating in the FIT program must submit a nonrefundable application fee and complete a detailed application that specifies the size of the proposed installation and the name of the contractor that will perform installation; proof of available financing is also required.

Funding and rate setting

From the beginning, GRU and the city commission knew that the lack of precedent would make it difficult to set the rates at which energy would be purchased, but that getting the rates right would be critical to the program’s success. The rates would not only have



A 2-megawatt commercial solar installation undertaken as part of the Solar Feed-in Tariff program; the system was completed in two phases, from 2009 to 2010. Photo: Sybac Solar.



A 2-megawatt (MW) installation at 6th Street Solar Park. The two systems (a 1 MW fixed-panel system and a 1 MW single-axis tracking system) were completed in two phases, from 2011 to 2012. Photo: Sybac Solar.

to be comparable to other energy incentives but also sufficiently high to attract investment. And since they would be financed by fees paid by GRU customers, they would need to be low enough not to create a burden on customers and thereby risk the loss of public support. A number of factors were considered in determining the rates, including the cost of solar installation at the time, statewide solar trends, input from installers and others in the solar industry, and anticipated maintenance and repair costs over a twenty-year period.

After a thorough review of the data, the city committed to \$0.32/kWh for 20 years for participants within the first two years of the program—a rate that was anticipated to yield an after-tax return on investment of between 4 and 5 percent. Since 2011, rates have been regularly adjusted to reflect the decreasing cost of solar. In 2013, rates were set at \$0.21/kWh for all systems yielding 10 kW or less, and \$0.18 for systems yielding between 10 and 300 kW.

Since payments to FIT participants are publicly funded, through a rate increase on the utility bills of GRU customers, the city wanted to limit the program’s impact on utility rates. The city commission capped total FIT participation at 4 MW per year. (The city’s goal is to generate 32 MW by 2016.)

Broad benefits and wide appeal

In February 2009, when the first FIT application period opened, Gainesville’s total installed solar capacity was 328 kW. Given the previous slow pace of solar installations and the fact that direct marketing and outreach

efforts announcing the program had been limited, city and utility officials doubted that the program would reach the 4 MW cap in the first year.

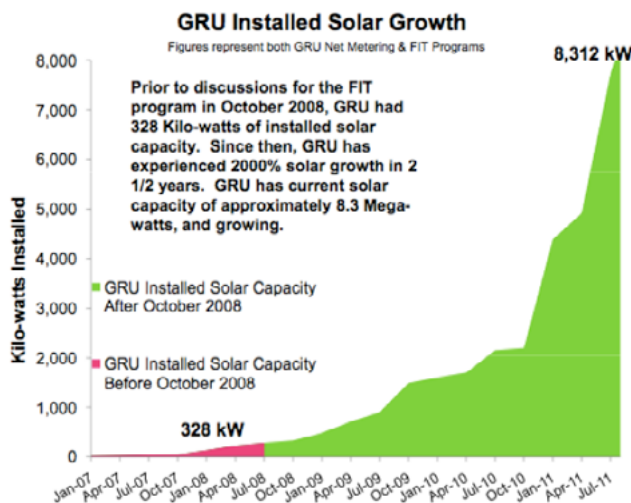
Nevertheless, the development of the first-ever FIT in the country generated significant attention throughout the solar industry—and, as a consequence, within two weeks of opening the program, GRU received applications for the full 4 MW allotment for the year, and had to start a waiting list. This overwhelming level of support and interest signaled that the city had hit upon something that could dramatically accelerate the adoption of solar technologies, and thereby help reach the community’s energy goals. Over the years, interest in the program has continued at a similar level, necessitating the use of an annual lottery to select participants (see figure 1).

The FIT program has been of particular interest to commercial property owners, who accounted for 139 of the 215 installations undertaken between March 2009 and the end of 2013. For commercial property owners, the FIT model differs from net metering in two significant ways. First, under the FIT approach, property owners gain direct benefits, whereas under net metering, the utility account holder received the incentive. The promise of direct benefits renders property owners more likely to invest in solar. Second, the FIT program guarantees that 100 percent of the energy generated will be purchased at a competitive rate for an extended period—whereas under net metering, property owners were credited only for the energy that was in excess of what had been consumed. Thus, large properties



A 250-kilowatt solar installation undertaken through a third-party lease on the roof of an apartment complex for graduate students. The photovoltaic panels also provide covered parking on the top floor of the parking garage. Photo courtesy of Power Production Management.

Figure 1. Increase in solar capacity between January 2007 and July 2011. Solar rebates and net metering were introduced in 2007; the Solar Feed-in Tariff program launched in February 2009.



that would not have benefited economically from net metering can realize significant benefits through FIT by building the biggest array that they can.

From the perspective of the utility, the FIT model is attractive because payment is based entirely on the performance of the systems, which increases property owners’ incentive to maximize energy output—for example, through regular maintenance. With the introduction of the FIT program, solar rebates for large installations were discontinued, thereby eliminating the utility’s up-front investment in installations.

The FIT model has also produced benefits for tax-exempt institutions—such as schools and libraries—that were previously unable to participate in solar incentive programs. Under the FIT approach, these institutions can enter into power-purchase agreements in which private entities lease the roofs of nonprofits and install solar on them. GRU pays the private entity for the energy produced, and the private entity pays the nonprofit institution for the use of the roof space.

Finally, the guaranteed long-term rate at which GRU purchases solar energy creates an attractive return on investment for local financial institutions, and thereby encourages private investment.

Lessons Learned

Since Gainesville brought the FIT model to the United States, several other communities and states have followed Gainesville’s lead: the [City of Fort Collins](#); the [City of Palo Alto](#); the State of [Vermont](#); and, most recently, the [City of Los Angeles](#). Nevertheless, on the

whole, the FIT model is still relatively uncommon in the United States.

The following characteristics helped make it possible for FIT to succeed in Gainesville:

- *Municipal ownership of the utility.* A primary goal of Gainesville’s FIT program was to reduce dependence on fossil fuel, in part by encouraging the growth of solar applications. GRU has neither pursued nor realized a profit as a result of the program; thus, the model may be less appealing to communities with investor-owned utilities.
- *Community support.* The city’s strong commitment to renewable energy was based largely on community opposition to the expansion of fossil-fuel-derived energy plants. Public support for the FIT model was particularly critical because program financing depended on a modest rate increase.
- *Local leadership.* Mayor Hanrahan and the city commission demonstrated strong leadership and vision in their unwavering commitment to renewable energy goals. This commitment has continued under Mayor Craig Lowe and has become a defining element of the city’s approach to current and future energy needs.
- *Willingness to embrace new ideas.* Both the city commission and GRU demonstrated a willingness to embrace a new, innovative strategy, and to depart from traditional approaches to increasing energy supplies. The fact that the FIT model was relatively new in Europe and had yet to be tried in the United States did not deter local leaders from moving forward.
- *Collaboration.* The city and GRU staff collaborated closely on the development and implementation of the FIT program. Both recognized the need to reduce energy consumption and to diversify energy sources.
- *Existing infrastructure.* An existing solar market, community familiarity with solar, and established permitting processes greatly aided the rapid deployment of solar after the launch of the FIT program.

The following are suggestions for other communities considering the FIT approach:

- Inform residents of the process involved in installing solar.
- Conduct outreach to explain and encourage residential FIT installations.
- Consider dedicating a fixed percentage of the annual maximum generation capacity to residential installations.

- Be aware that the permitting process for ground mounted systems can be more complicated and often cause installation delays.
- As part of the application process, require potential participants to confirm that they have access to sufficient financing to support the size of the installation.
- Including a nonrefundable application fee may help to attract projects that are “shovel-ready” and can be installed in a timely manner.
- Ensure that building inspectors are prepared for an increase in solar permitting applications; it may be worth considering streamlining the permitting process to facilitate rapid deployment.

Contacts

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Names of plans, policies, programs, projects, of partnerships that the local government or community has that encourages the development and deployment of solar PV on residential or commercial rooftops; community solarize projects; or other local solar projects.

- 2013–2014 City of Gainesville Strategic Plan. Adopted January 2013, <http://www.cityofgainesville.org/LinkClick.aspx?fileticket=FKBCeY6HBFw%3d&tabid=204>

Initiative 7.3 states a goal for the city to: “Reduce growth in electrical load 60% by 2015. Reduce carbon emissions from city operations sufficiently to meet the Kyoto Protocol target of 7% below 1990 rates of carbon emission by increasing the use of biomass and solar energy.”

- Gainesville Regional Utilities Climate Brochure (9/2012), <http://www.gru.com/Portals/0/Legacy/Pdf/Final%20Climate%20Change.pdf>

Endnotes

1. Unless otherwise noted, all information in this case study was obtained through interviews with the individuals listed under “Contacts.”
2. The caps were up to \$7,500 for residential properties (5 kW), and \$37,500 for commercial properties (25 kW).
3. Gainesville is a signatory of the [U.S. Conference of Mayors’ Climate Protection Agreement](#), created in 2005, which called for cities to reduce greenhouse gas emissions by 7 percent (in relation to 1990 levels) by 2012.

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