Module 1

CLEAN COALITION

Making Clean Local Energy Accessible Now

Local CLEAN Program Guide

Module 1: Overview & Key Considerations

December 2011

About the Clean Coalition

The Clean Coalition is a nonprofit organization whose mission is to accelerate the transition to cost-effective clean energy across the United States. The Clean Coalition believes that the right policies will result in a timely transition to clean energy while yielding tremendous economic benefits.

Contact Us

If you have any questions about the Guide or if you are interested in becoming a local advocate for a CLEAN Program in your community, please email LocalGuide@Clean-Coalition.org.

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Making Clean Local Energy Accessible Now

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Overview of the Guide

CLEAN Programs create local jobs and investment opportunities.

The Purpose of the Guide

This Local CLEAN Program Guide is designed to help communities and their local utilities evaluate, design, and enact **Clean Local Energy Accessible Now (CLEAN) Programs** based on global best practices and the expertise developed by the Clean Coalition through our work on designing and advocating for CLEAN Programs throughout the United States.

The Structure of the Guide

The Local CLEAN Program Guide is comprised of seven modules.

Module 1: Overview & Key Considerations provides an overview of CLEAN Programs and guides readers through the process of evaluating how a local CLEAN Program will match community goals, resources, and constraints.

Module 2: Establishing CLEAN Contracts Prices provides a roadmap for establishing optimal fixed prices for CLEAN Contracts.

Module 3: Evaluating Avoided Costs provides approaches for determining avoided costs to the utility and/or community.

Module 4: Determining Program Size & Cost Impact explains how to assess the amount of renewable electricity to purchase through a CLEAN Program and determine the associated cost impact, if any.

Module 5: Estimating CLEAN Economic Benefits provides approaches for estimating the economic benefits component of the local value of energy purchased through CLEAN Contracts.

Module 6: Designing CLEAN Policies & Procedures explains how to design streamlined program policies and procedures.

Module 7: Gaining Support for a CLEAN Program describes how to obtain community support and gain official approval for the program.

Introduction to the Guide

Across the country, local leaders increasingly recognize the benefits of accelerating our transition to a clean energy economy. A partial list of benefits include the following:

- Creating jobs and business opportunities
- Improving the health of community members
- Reducing greenhouse gas emissions
- Increasing energy independence
- Minimizing exposure to fossil fuel price volatility
- Staying competitive with Europe and Asia in the race to research, develop, manufacture, and install renewable energy technologies

The transition to a clean energy economy will require substantial changes to our nation's approach to electricity generation. Today, the United States primarily relies on large-scale, fossil fuel and nuclear power plants, located far from the communities where energy demand is greatest. This centralized approach requires electricity to be transmitted along high voltage transmission lines across long distances from these central power plants to the local distribution grids of the communities where the energy is actually used.

The national policy discussion has focused on replacing our aging fossil fuel and nuclear electricity generation infrastructure with correspondingly large-scale renewable power facilities and related infrastructure. However, these large-scale projects will take decades to construct as a result of the significant barriers to development that large projects face, including long project development lead times, frequent delays involved in the permitting and development of new transmission infrastructure, complex state and federal environmental review processes, and often intense community opposition to such projects. Of course, the massive costs associated with transmission infrastructure highlights another advantage of clean local energy, which is independent of the transmission grid and avoids all the associated issues.

Far from Washington, local leaders are discovering that they have the opportunity to lead the nation's transition to a more sustainable and decentralized energy economy. Local policymakers have begun to implement **Clean Local Energy Accessible Now (CLEAN) Programs** to spur the development of community-scale renewable energy facilities by standardizing and streamlining the processes that are essential to get clean local energy serving communities. This decentralized approach harnesses the combined power of small- to mid-sized renewable generation facilities that are spread throughout the communities they serve and are connected to the local distribution grid, as opposed to the remote transmission grid. Rooftop solar panels, small wind turbines co-located on farmland, and biopower facilities that convert agricultural waste into electricity are classic examples of distributed generation projects.

In contrast to large-scale renewable energy projects, CLEAN projects become "shovel-ready" within months. Because CLEAN projects are relatively small-scale and can be deployed on existing buildings and previously disturbed lands within communities, these projects are not subject to the major delays associated with the development of large-scale renewable projects.

While this approach is relatively new in the United States, CLEAN Programs (also known as "feed-in tariffs") have been proven to be the most effective policy solution for spurring renewable energy installations around the world. The Center for American Progress has found that CLEAN Programs have helped to bring more renewable electricity into the marketplace than any other policy.[i] The U.S. Department of Energy's National Renewable Energy Laboratory (NREL) reports that CLEAN Programs are responsible for 45% of all wind energy and 75% of all solar photovoltaic (PV) capacity installed in the world before 2008.[ii] Meister Consultants Group credits CLEAN Programs for 86% of the solar capacity deployed in the world in 2009.[iii]

CLEAN Programs empower community members to participate in the clean energy economy by making it easy for them to sell renewable energy to the local utility at a predetermined, fixed price for a long period of time. This approach helps communities to leverage private investment dollars to meet community goals, including:

- Creating local economic benefits
- Leveraging private investment dollars
- Reducing electric bills for community members
- Achieving the climate and sustainability targets of the community
- Providing a safer, more reliable energy infrastructure

CLEAN Programs empower community members to participate in the clean energy economy.

1) Overview of CLEAN Programs

A **Clean Local Energy Accessible Now (CLEAN) Program** is a policy tool that creates a stable market for clean energy by removing the main barriers to selling clean local energy.

How CLEAN Programs Work

To explain how CLEAN Programs work, it is useful to first discuss the limitations of current policies for promoting local renewable energy in the United States. Net-metering policies, the most popular policy for promoting local renewable energy in the U.S., are designed so that participating utility customers with a renewable energy system on their property will receive a credit on their electric bills for any generated electricity that is fed back to the utility's grid; customers essentially "bank" the value of the excess power that is generated during periods when they produce more power than they consume.

While customers can save money on their electricity bills with net-metering, these programs usually limit project sizes to the amount of power used by a single meter on the property and typically fail to provide compensation to customers that are net producers of power over an annual balancing period. Since potential financial benefits under a net-metering program are generally limited to the amount of energy a customer consumes, there is a distinct cap on how much a customer is willing to invest in renewable energy technology. Also, net-metering projects only result in energy cost savings to utility customers, so they are less appealing to investors and lenders than renewable energy projects that can provide a stable revenue stream from a utility, which almost always has far better creditworthiness than a utility customer. The creditworthiness issue is easiest to understand when considering the risk of a utility customer going bankrupt or turning off its electric service for another reason, which eliminates the energy savings in a net-metering arrangement. Given that installation costs represent roughly 50% of the installed costs of clean local energy projects, creditworthiness is evaluated on anticipated revenue streams from energy generation and not the resale value of renewable energy equipment.

Additionally, net-metering policies do not make financial sense in many places, such as the majority of commercial office spaces, warehouse rooftops, landfills, and agricultural operations. The limitations are obvious for large properties that consume little energy, but properties that are occupied by tenants are also highly problematic, because property owners have no financial incentive to be involved in net-metering arrangements where tenants would reap the benefits of reduced electricity purchases from the utilities. Of course, tenants are unwilling to invest in renewable energy projects for properties that they may vacate within 20 years, which is the typical minimum period for attaining a reasonable return on investment for a renewable energy project.

Local renewable energy projects that allow generators to sell electricity to local utilities, also known as **Wholesale Distributed Generation (WDG)** projects, are not hampered by the limitations of net-metering policies. However, without CLEAN Programs, WDG projects face significant barriers. A CLEAN Program removes these barriers, as described in Table A below.

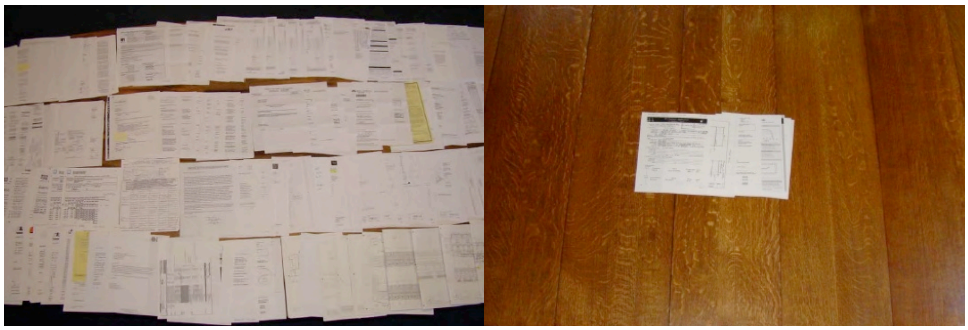
Table A: A CLEAN Program creates a stable market for clean local renewable energy projects by removing the main barriers to WDG project development:

I. **Procurement:** The high risks and transaction costs of securing a contract to sell energy to the local utility is the first major barrier that each WDG project must overcome. By standardizing contract terms and rates, CLEAN Programs dramatically reduce the risks and transaction costs involved in the procurement process.

II. **Interconnection:** Gaining access to the local utility's distribution grid is the second major barrier for WDG projects. Grid interconnection processes are generally opaque, expensive, and unpredictable. By making the process more transparent and streamlined, CLEAN Programs pave the way for a smooth transition to greater reliance on homegrown, renewable energy.

III. **Financing:** Attracting financing is the third largest barrier to WDG, because of the complexity, risks, and added costs associated with existing procurement and interconnection processes. By streamlining procedures, increasing procedural transparency, reducing transaction costs, and guaranteeing wholesale rates, CLEAN Programs make WDG projects attractive to a larger pool of potential lenders and investors, including large corporations and institutional investors.

CLEAN Programs spur wide-scale installation of clean energy systems by minimizing transaction costs and risks, eliminating administrative bureaucracy, and bringing certainty and transparency to the marketplace.



California Germany

Source: Gary Gerber, President of CalSEIA and Sun Light & Power, June 2009

The above photo on the left shows the amount of paperwork required for a single California Solar Initiative (CSI) project sized between 1 kilowatt (kW) and 1 megawatt (MW). There is even more paperwork for California projects larger than 1MW that must go through the RPS-related solicitation process, including auction processes. In contrast, the German paperwork shown above (right) covers all CLEAN projects from 1kW to as large as 20MW, potentially 20,000 times larger than the California project.

Key Features of CLEAN Programs

A CLEAN Program gives property owners and investors the information necessary to evaluate the economic viability and timeframe associated with installing a new renewable energy system before investing significant levels of time and/or money. CLEAN Programs open the field, giving community members the opportunity to invest in clean local energy

without exposure to the high risks, transaction costs and complexity that they would otherwise need to perilously navigate.

Table B: Key Features of CLEAN Programs

- Standard and guaranteed contract between the utility and a renewable energy facility owner
- Predefined, fixed rates for a long duration
- Predictable and streamlined access to the utility's distribution grid

CLEAN Contracts

A CLEAN Program includes "CLEAN Contracts," which have all of the following basic characteristics:

- Utilities are required to enter into a standard contract with each eligible renewable energy generator. Eligibility is predefined by renewable energy technology and configuration.
- The standard contract provides that the utility will pay a fixed, wholesale price that has been predefined.
- The standard contract provides that the utility will purchase all energy delivered by the eligible generator to the utility's electrical distribution grid for a long duration (typically 20 years).

Grid Access

For community members eager to invest in renewable energy, the process of gaining access to the utility's local distribution grid is often a "black box" that provides no certainty about the costs and timeframes for grid interconnection.

CLEAN Programs go beyond the CLEAN Contract structure to ensure that interconnection to the distribution grid is predictable, affordable, and timely. The grid access feature is achieved by having the utility predefine preferable locations for interconnecting clean local energy and instituting transparent processes, costs, and timeframes for achieving interconnection.

The Proven Success of CLEAN Programs

CLEAN Programs are based on the most successful policies in the world for accelerating the deployment of clean energy projects. While the CLEAN approach is relatively new in the United States, it builds upon the profound success of the global leaders in renewable energy deployment, and the economic successes they are achieving.

CLEAN Programs are by far the world's most effective market-based solution for deploying cost-effective renewable energy. A short list of evidence includes the following:

- The U.S. Department of Energy's National Renewable Energy Laboratory (NREL) found that CLEAN Programs are responsible for 45% of all wind energy and 75% of all solar PV capacity installed in the world before 2008.[iv]

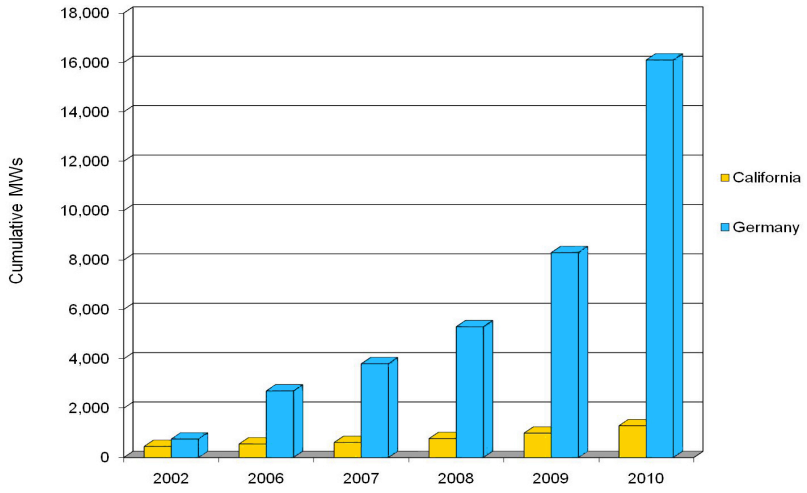
- CLEAN Programs are the primary renewable energy policy tool in Europe – this tool is responsible for 85% of new wind systems, nearly 100% of new solar PV systems, and 68% of new biomass generation installed in the European Union between 1997 and the end of 2010.[v]
- As a result of its CLEAN Program, the City of Gainesville, Florida, has experienced more than 2,000% growth of its solar PV capacity over two and a half years. As shown in Appendix A, Gainesville's cumulative solar capacity increased from 328 kW in October 2008 to 7.4 MW by April 2011.

Even locations with moderate renewable resource potential can rapidly reap the benefits offered by CLEAN Programs. Germany enacted its CLEAN Program in 2000,[vi] with the initial goal of generating 12.5% of the nation's electricity from renewable sources by 2010.[vii] It reached this target three years ahead of schedule[viii] and provided nearly 17% of the country's electricity demand with renewable energy by 2010.[ix]

When compared to California, a state with vastly superior solar potential, but which currently lacks a robust statewide CLEAN Program, the evidence is striking. Despite having slightly less land area than California[x] and solar resources roughly equivalent to those of Alaska,[xi] Germany installed more than 25 times more solar PV capacity than California in 2010[xii]. Over 80% of solar PV power capacity installed in Germany in 2009 was located on rooftops, and over 50% of Germany's total wind power capacity is supplied by wind projects smaller than 20 megawatts.[xiii]

Growth of the Solar Market:

Germany vs. California (RPS+ CSI + Others)



Source: CPUC, CEC, SEIA, and German Equivalents

Germany's CLEAN Program has produced significant economic benefits. In 2010, renewable energy investment in Germany totaled US$41.2 billion, and more than 340,000 jobs have been created in the renewable energy sector cumulatively.[xiv] By contrast, Germany's only significant domestic fossil energy source, lignite coal, employs only 50,000 people along its entire supply chain, from mining to the power plants.[xv]

2) Local Benefits of CLEAN Programs

Local CLEAN Programs catalyze a community's transition to a clean energy economy and empower community members to capitalize on the vast market opportunity associated with deploying clean local energy.

Here is a partial list of the benefits of a Local CLEAN Program:

- Maximizes local economic benefits
- Leverages private investment dollars to meet community goals
- Reduces electric bills for community members
- Achieves the climate and sustainability targets of the community
- Provides a safer, more resilient energy infrastructure

Maximizes Local Economic Benefits

CLEAN Programs bring the economic benefits of energy production to local communities. Producing local renewable energy creates significantly more jobs than producing fossil fuel or nuclear energy. For example, solar PV energy production, which is one of the most common CLEAN project technologies, contributes nearly nine times the number of jobs as coal or natural gas production.[xvi]

CLEAN Programs also keep energy dollars in the community by giving community members the opportunity to invest in local renewable energy facilities by reducing the complexity, risk exposure and transaction costs of renewable project development.

Another benefit is that CLEAN Programs enable cities and counties to repurpose or maximize the productivity of many different types of underutilized spaces in their communities, such as brownfields, parking lots, rooftops, and agricultural land. For example, local governments have an excellent opportunity to turn energy-intensive, costly water and wastewater treatment plants into sustainable, revenue-producing enterprises by converting the organic waste they process into methane energy.[xvii]

Leverages Private Investment Dollars to Meet Community Goals

CLEAN Programs do not rely on subsidies, rebates or other expenditures by state or local governments. Instead, they leverage private investment dollars to meet community goals by reducing the costs, risks, and timeframes for renewable energy project development.

The reduction of costs, risks, and timeframes leads to dramatically greater numbers of local project installations, which in turn results in greater economies of scale, driving down local renewable energy system installation costs further. The Lawrence Berkeley National Laboratory found that the lower installed costs of small solar PV systems in Germany and Japan that occurred as a direct result of the increase in solar PV installations in those countries indicates that increased solar PV market scale in the United States will also drive significantly lower installation costs.[xviii] As increased project development reduces local installation costs, communities can continue to grow their renewable energy markets even more cost-effectively.

Reduces Electric Bills for Community Members

CLEAN Programs help electricity ratepayers avoid the costs of long-distance transmission of energy. Developing a new high-voltage transmission line to deliver electricity from a large-scale renewable power project to consumers often costs billions of dollars.[xix] Further, transmitting energy across long distances is very inefficient and results in significant loss of energy. For example, transmission line losses range between 7.5% and 14% for California and are around 8% for the City of New York.[xx] CLEAN Programs take advantage of existing distribution grid capacity and opportunities to make cost-effective distribution grid upgrades, while reducing demand for transmission line capacity.

CLEAN Programs also protect communities from rising fossil fuel costs by locking in reasonable electricity rates. During the first few years, a robust CLEAN Program may result in a small rate increase for community members. For example, the City of Gainesville, Florida, achieved a 2000% increase in solar capacity with a rate impact of less than 1% over the first two and a half years of its CLEAN Program.[xxi] However, within a few years, fossil fuel rates generally begin to rise above fixed CLEAN Contract rates.

It should be noted that local utilities pay a substantial fee for receiving energy from the transmission grid. The municipal utility for the City of Palo Alto calculates that Transmission Access Charges (TACs) and other cost factors associated with transmission currently add roughly 1.8 cents/kWh.[xxii] Hence, transmission represents a substantial cost component of energy generation that is interconnected to the transmission grid. Of course, the transmission-related costs are entirely avoided when energy generation is interconnected to the distribution grid for local use.

Achieves the Climate and Sustainability Goals of the Community

Across the country, community leaders and utility administrators are trying to achieve climate and sustainability goals, while minimizing budget and ratepayer impacts. CLEAN Programs can be easily integrated into local action plans and can help communities and utilities meet local and state renewable energy and climate targets, rapidly reduce air pollution and greenhouse gas emissions, and accelerate the replacement of fossil fuel and nuclear power plants, without cost to the government or significant electric rate increases.

CLEAN Programs can be easily implemented and administered by utility staff. The Gainesville Regional Utilities (GRU) did not hire a single additional staff member to implement or administer its CLEAN Program. GRU's Program implementation involved creating standard requirements, contracts, interconnection processes, and payments for projects; as a result, the utility saved valuable staff time that was previously spent on decision making, negotiations, legal disputes, and payment administration. More information about GRU's experience implementing and administering Gainesville's program is available in Appendix B.

CLEAN Programs also help communities avoid the divisive issues associated with the siting of large-scale renewable power projects and related infrastructure. The siting of new large-scale renewable power plants and expansions of high-voltage transmission infrastructure often divides communities between those who favor these projects and those who fervently oppose the disruption of sensitive ecosystems and the erection of unsightly transmission towers, lines, and other infrastructure. In contrast, CLEAN projects take advantage of underused urban spaces, such as rooftops, parking lots, and blighted and disturbed land.

Provides a Safer, More Reliable Energy Infrastructure

CLEAN Programs not only protect our families from the health effects of dirty energy, but also encourage the development of an energy infrastructure that can keep our communities safer in the event of earthquakes, terrorist attacks, and other disasters.

The failure of three nuclear reactors at the Fukushima Daiichi Nuclear Power Plant greatly compounded the effects of the earthquake and tsunami that devastated northern Japan on March 11, 2011. Everyone residing within 50 miles of the plant was forced to evacuate as the danger of radiation leaks, hydrogen explosions, and overheating fuel rods at the plant intensified. In the aftermath of the disaster, the Japanese government took precautions to prevent more nuclear meltdowns by halting operations at several nuclear facilities across the country.[xxiii] The resulting energy shortage forced the Japanese government to require all factories, offices, and homes across the country to curtail their electricity usage by 15%.[xxiv] The extent of economic, environmental, and national security effects are unclear, but it is probable that massive areas of previously productive land and fishing territory will remain quarantined for decades to come.

Closer to home, on August 14, 2003, a transmission line in northern Ohio failed after softening under the heat of the high current coursing through it. When the alarm system failed to register the problem, this triggered a cascade of grid failures throughout southeastern Canada and eight northeastern US states. Around 50 million people lost power for up to two days, resulting in at least 11 deaths and a cost of close to $6 billion.[xxv]

Jim Woolsey, the former Director of the U.S. Central Intelligence Agency, asserts that our transmission grid vulnerability is a national security issue that can be addressed with CLEAN Programs. Terrorist attacks at a few isolated physical points in the grid or a coordinated cyber-attack could compromise the nation's water, sewage, phone, transportation and medical systems, and most of our basic economic functions, that all depend on electricity. Jim Woolsey has concluded that CLEAN Programs can make our electricity grid more resilient by facilitating the formation of "micro-grids" that can provide essential services even during a long-term emergency.[xxvi]

3) Key Considerations for Evaluating a Local CLEAN Program

The determination of whether a CLEAN Program is right for your community requires evaluations of your community's relationship with its utility, the renewable energy resources available locally, and the goals and constraints of a local CLEAN Program.

Evaluating the Utility Relationship

The relationship that your community has with its utility is an vital consideration. A community with more control over its local utility has greater freedom to implement a comprehensive CLEAN Program.

- If your community relies on a municipal utility or cooperative to procure and distribute its electricity, the community can require its local utility to implement a CLEAN Program.
- If your community relies on an investor-owned utility to procure and distribute its electricity, local leaders may be able to negotiate with the utility to implement a CLEAN Program.
- If your community benefits from **Community Choice Aggregation (CCA)** or has similar rights to procure energy, the community purchasing authority can implement a **CLEAN Contracts Program**, which is a CLEAN Program without the Grid Access features. For example, the CCA for Marin County, California, has implemented a CLEAN Contracts Program, which is summarized in Appendix C.

If your community does not control its utility or energy procurement rights, and cannot secure the cooperation of its utility, your community can still take advantage of its clean local energy resources by implementing a **CLEAN Campus Program**.

- Cities, counties, corporate campuses, manufacturing campuses, school districts, water districts, and other entities that control properties and purchase energy from investor-owned utilities can increase on-site renewable power production, lock in reasonable electricity rates, and reduce power outages by implementing a CLEAN Campus Program.
- CLEAN Campus Programs feature predefined rates and standard contracts and procedures. In contrast to the Request for Proposal (RFP) approach to clean energy transactions, the CLEAN approach results in far lower transaction costs and burdens for all parties, which translates into lower electric rates. More information about CLEAN Campus Programs is available here.

Evaluating Local Renewable Energy Resources

It is important to understand what renewable energy resources are available and likely to be cost-effective in your community. Every community possesses a variety of renewable energy resources, such as wind, sun, and organic waste. Local CLEAN Programs should be focused on the resources that are most abundant and cost-effective for the community.

Many tools are available online to help community members calculate local renewable energy resources, such as wind, solar and biopower energy. For example, the U.S. Department of Energy has compiled a list of tools to help communities evaluate options for generating renewable energy.[xxvii] Module 2 of the Local Clean Program Guide provides guidance on the pricing levels required for any contemplated technologies.

Evaluating Program Goals & Constraints

The goals and constraints of a community will inform the specific design of any local CLEAN Program. Generally, the key stakeholders will include city or county staff, local utility staff, local sustainability-oriented parties, including renewable energy industry participants, and interested community members.

As described in Section 2 above, a local CLEAN Program can achieve multiple goals of a community. Community stakeholders help to identify the specific goals of their community that will be a priority for their Program. Goals may include:

- Stimulating the local economy
- Enhancing local government revenues
- Attaining national recognition for clean energy leadership
- Creating economies of scale for local renewable energy industries
- Minimizing consumer rate increases
- Achieving local sustainability goals on time

Community stakeholders also help to define how the community can mitigate their CLEAN Program's potential constraints, which may include taking actions such as:

- Starting with a pilot-sized program
- Limiting the consumer rate impact (e.g. no more than a 1% increase to consumer rates for the first two years of the CLEAN Program)
- Keeping the initial program simple to maximize the likelihood of program success
- Complying with, or minimizing changes, to existing contractual obligations of the utility

The subsequent modules of this Local CLEAN Program Guide explain in far greater detail how to design and implement CLEAN Programs to maximize economic and sustainability results in relation to specific goals, resources, and constraints.

4) Local CLEAN Programs Deliver Results Now

Local CLEAN Programs deliver rapid results and make clean local energy accessible NOW. By minimizing bureaucracy and maximizing efficiency, CLEAN Programs empower local communities and utilities to dramatically accelerate the pace of solar, wind, and biopower project deployment.

When the City of Gainesville, Florida looked for a policy tool to unleash clean local energy, planners from the local utility found that CLEAN Programs provide the highest rate of renewable energy deployment at the least cost per kilowatt-hour generated.[xxviii] As a result of its CLEAN Program, Gainesville has experienced more than 2,000% growth in its cumulative solar PV capacity in just two and a half years. As shown in the graph in Appendix A, Gainesville's solar capacity increased from 328 kW in October 2008 to 7.4 MW by April 2011. The dramatic success of the Gainesville CLEAN Program is further described in Appendices A and B.

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Appendix A – Gainesville CLEAN Program Brief

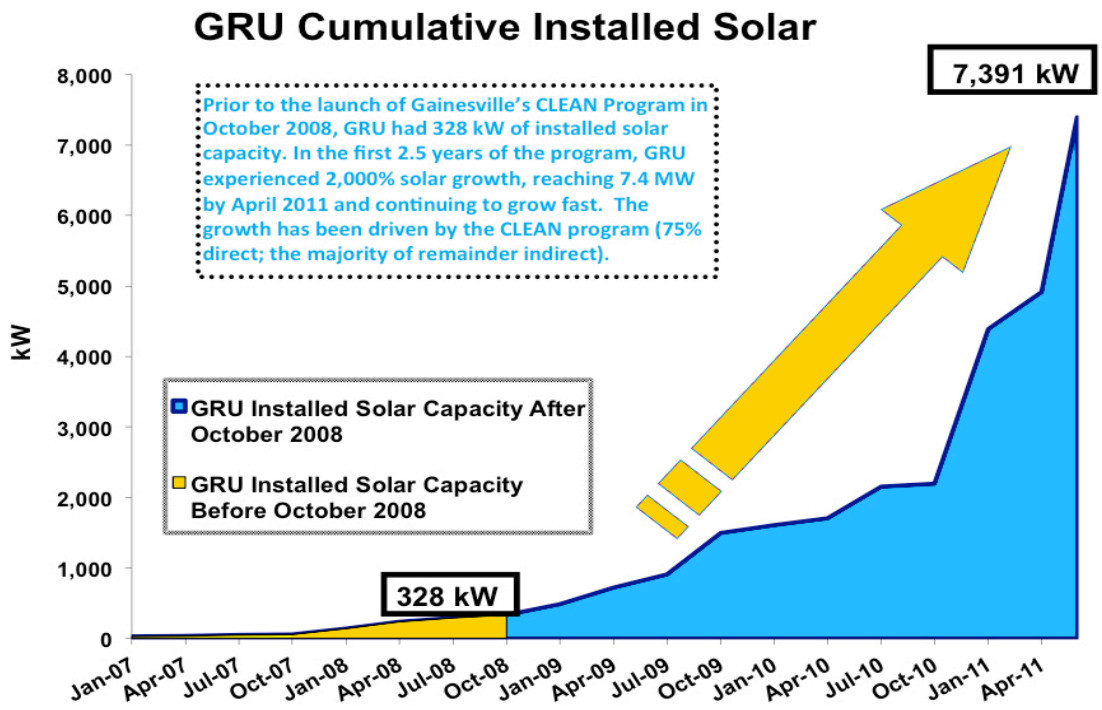
Gainesville Program Highlights	
Utility	Gainesville Regional Utilities (GRU)
Program Size	4 MW per year
Project Size	1 MW max for ground-mounted, 300 kW for building or pavement-mounted
Pricing	$0.24/kWh - $0.32/kWh
Fees & Deposits	$500 - $1200 & $30/kW
Eligible Energies	Solar Photovoltaic (PV)

Overview

Gainesville Regional Utilities (GRU) serves 90,000 electric customers in Gainesville, Florida. In 2007 GRU had implemented a retail net metering program, coupled with a $1.50 per watt (W) installation cost rebate. Despite these efforts, by late 2008 the city still had less than 400 kilowatts (kW) of deployed solar. The City Commission then undertook a comprehensive effort to shift toward renewable energy and reduce greenhouse gas (GHG) emissions following a robust local debate on energy supply options and Gainesville's adoption of the US Conference of Mayors' Climate Protection Agreement. GRU drew upon a successful German program and, within six months, enacted the first comprehensive, cost-based, CLEAN Program in the United States in March of 2009.

GRU's CLEAN Program (locally known as a "Feed-In Tariff" Program) has been a great success. As a result of its CLEAN Program, Gainesville has experienced more than 2,000% growth of its cumulative solar PV capacity over two and a half years. GRU's solar capacity increased from 328 kW in October 2008 to 7.4 MW by May 2011. GRU granted all of its initial annual 4 megawatt (MW) allocation in the first week of the Program's existence and, within five months, the program was fully subscribed for the next seven years. GRU has filled all 32 MW of its CLEAN project allocations through 2016, and there is currently a multi-year waitlist for the program.[i]

The Gainesville CLEAN Program has accelerated the city's clean energy economy. The city is establishing a local solar industry base to serve communities throughout the region. The 20-fold increase in volume of deployed solar has significantly increased economies of scale and driven down the costs of installing a solar system. Gainesville's CLEAN Program created approximately 260 new jobs, many of which are local jobs. It should be noted the employment growth was entirely in the private sector. Gainesville Regional Utilities (GRU) did not hire a single additional staff member to implement or administer its CLEAN Program. GRU's Program implementation involved creating standard requirements, contracts, interconnection processes, and payments for projects; as a result, the utility saved valuable staff time that might otherwise have been spent on decision making, negotiations, legal disputes, and payment administration to deploy an equivalent amount of renewable energy. The impressive results of Gainesville's CLEAN Program to date have been achieved with a rate impact of less than 1%.[ii] More information about GRU's experience implementing and administering Gainesville's program is available in **Appendix B**.[iii]



Source: GRU, June 2011

Allocation & Contract Terms

Contracts are issued on a first-come-first-served basis. GRU offers 20-year, fixed-rate contracts for all energy produced by Program projects[iv] (no partial net-metering is allowed). Project owners are also eligible for all federal tax benefits and other incentives that might be available.

Participant Eligibility

To be eligible to participate in the Gainesville CLEAN Program, a solar photovoltaic (PV) project must be located within GRU's electric service territory, but the PV system owner does not have to be a GRU customer. The project must also be approved by GRU engineering staff. Any system that has previously received a rebate from GRU or entered into a net-metering program is not eligible for the Gainesville CLEAN Program.[v]

Project Milestones

Once a queue year begins on January 1st, sellers must initiate their projects by March 31st by contacting GRU's Solar Program Coordinator. Sellers then have 60 days to obtain engineering approval. After receiving engineering approval, the Solar Energy Purchase Agreement (SEPA) is signed by both parties. The sellers then have 60 days to acquire the equipment needed for the project and 120 days to complete construction and begin operation. Any projects that fail to meet these deadlines are subject to termination.[vi]

Fees & Deposits

There is a non-refundable processing fee when submitting an application. The fee is $500 for systems 10 kW or less and $1,200 for systems greater than 10 kW. Upon acceptance of the power purchase contract, a queue reservation deposit of $30/kW is required.[vii]

Interconnection

Interconnection is standardized through the SEPA contract, and participants will be paid for 100% of the solar energy they generate, all of which is delivered to the GRU grid.[viii]

Pricing

Pricing for the GRU CLEAN Program is based on the average installed cost of solar PV systems. Rates for 2011:[ix]

- Rooftop or over-pavement projects and ground-mounted projects less than 10 kW: $0.32/kWh (based on average installed cost per watt of $7.50).
- Rooftop or over-pavement projects 10-300 kW and ground-mounted projects 10-25 kW: $0.29/kWh (based on an average installed cost per watt of $6.75).
- Ground-mounted projects greater than 25 kW: $0.24/kWh (based on an average installed cost per watt of $5.55).

Installed cost per watt includes all costs associated with construction, including all materials and labor.

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Appendix B – Letter from GRU on Program Success

GRU More than Energy℠

GAINESVILLE REGIONAL UTILITIES
STRATEGIC PLANNING

Implementing the Gainesville Feed-In Tariff

John Crider, Gainesville Regional Utilities

In January of 2009 the city of Gainesville, FL, decided to replace an existing commercial solar net metering rebate program with one based on the European Feed-In Tariff model, specifically the model adopted by Germany. Gainesville was impressed with the results from the German program which, when compared to any other incentive program, statistically provided the highest rate of deployment at the least cost per kilowatt-hour generated.

Gainesville had operated a solar rebate program for several years prior to 2009. The rebate program resulted in about 350 kilowatts of installed capacity, which was enough to rank Gainesville as the number one solar city in Florida on a per capita basis. However, the program had administrative difficulties that Gainesville wished to solve.

The primary defect with a rebate program is that funds are paid to project owners as upfront cash. Once this incentive is received to purchase the equipment, there is no ongoing incentive for project owners to maintain their system and ensure the production of energy. Gainesville found a preponderance of inactive, abandoned, and poorly maintained systems that failed to provide the ongoing energy that was promised. Efforts were made by Gainesville to oversee and protect the investment in these systems, but this demanded much staff time and project tracking to properly police the projects.

The Feed In Tariff has proven to be a much simplified and straightforward program to implement, and guarantees that the city's funds are used most efficiently since every dollar spent purchases actual energy generated. The simple performance-based incentive can be stated in one sentence: "Gainesville will pay you a flat rate for every kilowatt-hour of energy generated for 20 years". It's a policy that is transparent, easily understood, and straightforward to administer.

Several aspects of the program have proven to simplify and streamline the process. First, there is a standard set of "bright line" requirements for a project to qualify, demanding no staff analysis or interpretations. Second, there is a clear method for assigning capacity to qualifying projects, again demanding very little staff time or decision-making. There is no staff time wasted with evaluating RFPs and no additional costs to the project developer to compete in an RFP process. Third, each project regardless of size signs a short, standard offer contract and interconnection agreement. There is no valuable staff time wasted in negotiations and legal disputes. (In comparison, the traditional contract Gainesville recently signed for a biomass plant not covered under the FIT program took 9 months to complete the RFP review process and another year to negotiate contract terms.) Finally, administration of payments is standardized and can automated using a traditional utility billing system.

The Gainesville FIT program has entered into its third year, and its impressive results have been achieved with a rate impact of less than 1%. In effect, the City of Gainesville has expanded its level of deployed solar by more than an order of magnitude with a rate impact far below inflation. Perhaps most impressive is that the move to the FIT required zero new staff to administer, proving both the efficiency and effectiveness of the policy when properly implemented

John Crider
Strategic Planning Engineer

Appendix C – Marin CLEAN Program Brief

Marin CLEAN Contracts Program Highlights	
Procurement Authority / Utility	Marin Energy Authority (MEA) / PG&E
Program Size	2 MW
Project Size	Up to 1 MW
Pricing	$0.0848 to $0.1377 per kWh
Fees & Deposits	None
Eligible Energies	All California RPS-eligible technologies

Overview

Marin Clean Energy (MCE), California's first community choice aggregation (CCA) program, is operated by the Marin Energy Authority (MEA).[i] A CCA program is a program that allows local jurisdictions to aggregate the electric load of their residents, businesses and other institutions in order to buy and generate electricity on their behalf. CCA programs focus on the purchasing side of the business and partner with existing utilities for power distribution, line maintenance, and customer billing.

Effective January 1, 2011, MCE's CLEAN Contracts Program (referred to as a "Feed-in Tariff Program" by MCE) provides local residents and property owners with the opportunity to install small-scale renewable generation systems, like solar or wind, and sell their electrical output directly to MCE at a predetermined, fixed price for a long duration.[ii]

A standard offer power purchase agreement (PPA) is now available for any eligible producer in Marin County to sell power for a contract term to be chosen by the seller (10, 15, or 20 years). Damon Connolly, Chair of the Marin Energy Authority said, "We are so proud to be launching a Feed-in Tariff in Marin County. This will encourage the production of more local renewable energy right here in Marin while driving local job growth at the same time. It is really a win-win!"[iii]

MCE is utilizing the new CLEAN Program as a way to promote the development of local renewable energy resources and reduce greenhouse gas emissions in Marin.[iv] CLEAN Contracts minimize the cost, time, and effort required to contract with power generators by standardizing the price and contract. The MCE Program is capped at 2 MW system-wide and may be increased in the future by MEA's Board of Directors.[v]

Peak Energy Pricing ($/ kilowatt hour (kWh))			
	Contract Length		
Initial Delivery Period	10 years	15 years	20 years
2011	$0.1198	$0.1248	$0.1298
2012	$0.1234	$0.1285	$0.1337
2013	$0.1271	$0.1324	$0.1377
Baseload Energy Pricing ($/ kilowatt hour (kWh))			
	Contract Length		
Initial Delivery Period	10 years	15 years	20 years
2011	$0.0998	$0.1048	$0.1098
2012	$0.1028	$0.1079	$0.1131
2013	$0.1059	$0.1112	$0.1165
Intermittent Energy Pricing ($/ kilowatt hour (kWh))			
	Contract Length		
Initial Delivery Period	10 years	15 years	20 years
2011	$0.0848	$0.0898	$0.0948
2012	$0.0873	$0.0925	$0.0976
2013	$0.0899	$0.0953	$0.1006

The numbers in this chart have been converted to reflect kWh pricing and have been rounded up.
Source: Marin Energy Authority, Feed-In Tariff for Distributed Renewable Generation (FIT), 2011

Allocation & Contract Terms

The seller has the option to enter into a contract for 10, 15 or 20 years.[vi]

Participant Eligibility

Projects must be within Marin County to be eligible. All technologies qualify that are certified as eligible for California's Renewables Portfolio Standard (RPS) by the California Energy Commission (CEC).[vii]

Project Milestones

Projects that do not achieve commercial operation within 12 months of execution of the PPA will be terminated.[viii]

Fees & Deposits

None.

Interconnection

Since MCE does not control Marin County's electrical grid, projects under MCE's CLEAN Contracts Program must comply with the interconnection rules and tariffs set by the distribution grid operator, which in Marin County is Pacific Gas and Electric (PG&E). Hence, renewable energy project developers must deal with PG&E for interconnection processes.

Pricing

Predefined pricing is fixed for a long duration with each PPA. Pricing is differentiated by one of three energy delivery profiles (peak, baseload, or intermittent) and contract duration (10, 15, or 20 years). Solar photovoltaic (PV) and solar thermal technologies are typically peak energies. Landfill gas, biomass and fuel cells are baseload while wind is considered intermittent. Technologies that meet the peak energy profile receive the highest rate, followed by baseload and then intermittent technologies receiving the lowest rates.[ix]

Prices also vary by contract length and initial delivery period. Contracts lasting 20 years with later initial delivery dates receive the highest rate for all energy profiles.[x] The FIT prices reflect MEA's avoided cost for procurement and delivery of comparable eligible renewable energy volumes during the specified terms and time periods based off of the market prices paid under an agreement with Shell Energy North America (SENA).[xi]

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