CLEAN *COALITION*
Making Clean Local Energy Accessible Now

Local CLEAN Program Guide

Module 6: Designing CLEAN Policies & Procedures

CLEAN COALITION
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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 champion for a CLEAN Program in your community, please email LocalGuide@Clean-Coalition.org.

CLEAN COALITION
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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 local economic benefits 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.

1) Overview of Policies & Procedures

This module of the Local CLEAN Program Guide provides a roadmap for designing clear CLEAN Program policies and procedures that are easy for utility staff to implement and for program participants to follow. The essence of a CLEAN Program is that it creates a streamlined and predictable process for purchasing clean local energy that reduces the costs, risks, timeframes, and administrative burdens of purchasing clean local energy and developing these projects.

> **Key Elements of CLEAN Program Policies & Procedures:**
>
> - Application procedures
>
> - Standard contracts
>
> - Program administration and evaluation procedures

Historically, most utilities in the United States purchase renewable energy through solicitation processes, such as request for proposals (RFPs) or auctions. Solicitations are very time-consuming and expensive for utilities. Utility staff members must develop proposal guidelines, compare proposals or bids from project developers, and then negotiate customized agreements with one or more developers. Gainesville Regional Utilities (GRU) in Florida, which enacted a CLEAN Program in 2009, has found its CLEAN Program to be a much more efficient way to procure clean local energy than the utility's pre-existing RFP process. As an example, the utility spent 9 months reviewing RFP proposals for a single biomass project not covered under the utility's CLEAN Program and another year negotiating the contract terms. In contrast, projects accepted through the CLEAN Program are processed far more efficiently and quickly;[i] GRU processed many applications simultaneously within 3 to 10 months, as described in Appendix B.

Further, solicitation processes require the review of many proposals that will not result in completed projects, which increases costs for both utilities and project developers, and ultimately raises the price of renewable electricity. For example, if 20 developers submitted competing bids to fulfill an RFP for 4 megawatts (MW) and only 3 developers secured contracts, then 17 developers lost substantial investments in both time and money to make failing bids. This risky process is very expensive for developers, resulting in higher bids and fewer surviving developers left to compete in future solicitations. This also limits participation to developers who can afford to take on these risks, shutting out small businesses and local property owners.

In contrast, CLEAN Programs consist of standard project requirements, contract terms, contract payments, and interconnection processes. Since there is a standard set of "bright line" requirements for a project to qualify, no utility staff analyses or interpretations are required for evaluating bids or negotiating contracts, and anyone can participate in the program without incurring high risks or transaction costs. Further, CLEAN Contracts contain standard terms and therefore do not require staff interpretations of varying contract terms after the contracts have been signed. Finally, since the payments are fixed, the administration of payments can easily be automated using a traditional utility billing system.[ii]

This module highlights best practices for program design and ways to avoid potential pitfalls. The key is strong communication and coordination with all departments within the utility and outside departments to design a program that meets program goals, accounts for state and local incentives, makes costs and timeframes transparent and predictable, minimizes administrative hassles, maximizes cost-effectiveness, and complies with state and federal regulations.

> **Table A: Steps for Designing CLEAN Program Policies & Procedures:**
>
> 1) Policymakers adopt program goals (Module 7).
>
> 2) Policymakers empower utility staff members or consultants to design one or more CLEAN Program proposals (Module 7).
>
> 3) Utility staff members or consultants develop CLEAN Program design proposals (Sections 2, 3, and 4 below).
>
> 4) Policymakers consult with outside departments and agencies (Section 5 below).
>
> 5) Utility staff members or consultants recommend a CLEAN Program design proposal.
>
> 6) Policymakers comment on or approve a program design proposal (Module 7).
>
> 7) Utility staff members or consultants design the program's processes and procedures.

Note that the level of complexity of the program policies and procedures will depend on the complexity and size of the proposed program. The CLEAN Programs of Gainesville, Florida and Sacramento, California represent the two ends of the spectrum; the Gainesville program is a small CLEAN Program that only allows for one renewable energy technology type and accordingly has a basic set of policies and procedures, while the Sacramento CLEAN Program is a relatively large program that includes several renewable energy technologies and therefore has a set of appropriately detailed policies and procedures. Table B highlights the differences in these two successful programs. Appendices A and B provide an outline of each utility's policies and procedures.

Table B: Comparison of GRU's and SMUD's CLEAN Programs:

Program	Program Size	Technologies	Project Size Cap
Gainesville Regional Utilities (GRU)	4 MW per year	Solar photovoltaic (PV) only	1 MW
Sacramento Municipal Utility District (SMUD)	100 MW initial total	Multiple technologies	5 MW

2) Incorporating Program Goals

After the program goals have been selected and prioritized, utility staff members will translate these goals into a program design proposal. Table C shows how program goals may influence the design of policies and procedures.

Table C: Examples of How Program Goals Can Influence Policies & Procedures:

Program Goals	Potential Influence on Policies & Procedures
Meet renewable energy deployment goals within a desired timeframe	Create application and contract requirements that ensure that projects under contract will begin operation within a desired timeframe. Design an application and interconnection process that avoids delays and bottlenecks that would prevent projects from beginning operation within a desired timeframe.
Encourage local private investment	Arrange for expedited permitting or other incentives for preferred project types. Limit participant eligibility to utility customers and locational eligibility to the utility service territory only.
Repurpose brownfields or unproductive farmland	Arrange for expedited permitting or other incentives for projects sited in preferred locations. Set aside a portion of the capacity allocation or set higher contract prices for projects sited in preferred locations.
Encourage siting projects at locations that are the most cost-effective for the utility	Publish a map of the distribution grid that reflects the most cost-effective locations for interconnection (for an example, see Figure 1 in the Interconnection Procedures section below). Restrict project siting to certain locations or zones of the distribution grid that are cost-effective for the utility.
Stay within defined cost impact limits	Create program administration and evaluation processes to ensure that the program will not exceed cost impact limits.

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3) Designing Application Procedures

The application process should be transparent, simple, and predictable. The goal is to minimize (i) the amount of utility staff time necessary to administer the program, (ii) the amount of project applicant resources necessary to evaluate and comply with the requirements, and (iii) the risk that an applicant will not complete the process and begin operation within a reasonable timeframe.

Application procedures consist of the following elements:

- Application requirements

- Application acceptance and queuing procedures

- Interconnection procedures

All application instructions should be made publicly available through the utility's website. For a simple program, a webpage of instructions should suffice. For a more complex program, a downloadable manual of policies and procedures may be helpful to applicants.[iii]

Application Requirements

The application requirements should clearly define the eligible project and participant types, the required proof that the application was submitted in good faith, and details associated with any fees and/or deposits.

Eligible Project & Participant Types

The application instructions should define the eligibility of projects in terms of the technology types, capacity parameters, configuration, siting, and applicant type. As recommended in Module 2, eligible project types should be selected based on program goals and cost-effectiveness. For example, a utility may choose to limit program participation to projects located in specified zones of the distribution grid that are closer to load in order to maximize the benefits of avoiding costs and energy losses associated with transmission. Similarly, a utility may choose to limit program participation to utility customers. This requirement supports typical program goals, such as local ownership of facilities and keeping energy dollars in the community.

Proof of Good Faith

Application requirements should include proof that the submission is made in good faith. Optimal requirements will (i) weed out speculative or unrealistic applications, which will minimize unnecessary burdens on utility staff, (ii) ensure that the accepted projects have a high probability of successful completion, and (iii) avoid discouraging viable projects.

Table D: Types of Proof of Good Faith:

Type of Proof	Rationale
Site control	Proof of ownership or a site lease ensures that the applicant has legal authority to proceed with installation at the designated location.
Basic engineering plans and estimated output	This information is essential for determining the amount of program capacity reserved for each project.
Application fee and reservation deposit	As detailed below, a significant application fee and deposit ensure that applicants have a stake in successful project outcomes and have an incentive to meet project milestones.
Project milestones	Establishing project milestones defines continuing eligibility by specific measurable criteria.
Identity of project applicants	Applicants should certify the identity of the project owner and the underlying owners of the project owner.

Application Fees & Reservation Deposits

Application review fees and reservation deposits serve two functions: (i) recovering utility costs, and (ii) discouraging speculative applications.

When defining fees and deposits for a CLEAN Program, the utility should consider the following questions:

- What utility costs will the applicant be responsible for paying?

    ○ General administrative review costs
    ○ Interconnection review costs
    ○ Distribution grid upgrade costs

- Will review fees be fixed or depend on other factors?

    ○ General administrative review costs might depend on the project output capacity
    ○ Interconnection review fees might depend on the location and the load and generation profiles on the applicable line segment and circuit, plus the neighboring circuits served by the same distribution substation

- How large of a reservation deposit will ensure that applications are submitted in good faith without discouraging otherwise viable applications?

- When in the process must these fees and deposits be paid and potentially refunded?

Reservation deposits should represent a meaningful good faith commitment without creating a significant burden to any serious project. Significant but reasonable fees and deposits act as a strong incentive for applicants to determine their own project's viability and development timeline. Generally, the application deposit should be paid with the application submission, and the reservation deposit should be made once the application and interconnection have been approved. The application deposit will discourage purely speculative submissions from displacing serious projects and greatly reduce review burdens by limiting review efforts to viable projects. This will in turn lead to speedier evaluation and approval of applications, permits, and interconnections for participants.

Application Acceptance and Queuing Procedures

The public should receive at least 60 days prior notice of contract offer terms before each release of program capacity to give potential program participants adequate time to assess potential projects and prepare strong applications.

A "first come, first served" allocation of program capacity and interconnection is fair, rewards early action, and encourages timely planning and application submission. These features would not be achieved through use of a lottery system, and use of subjective criteria would raise issues of accuracy and fairness while adding a significant burden on staff time and resources. Sacramento Municipal Utility District (SMUD) experienced an orderly application submission and review process and met its program capacity target within seven days.[iv] Generally, all applications that meet the eligibility criteria should be treated equally. However, a utility may consider having the policy that in the event that the entire queue is filled within the first day of the program, a lottery system will be implemented to allocate capacity among first day applicants.

To encourage broad program participation, a utility may limit the aggregate capacity that may be allocated to any individual person or entity during a given period (e.g. 2 MW or 20% in any single periodic allocation). Any applications representing capacity exceeding this limit may be given a position in the waitlist for future periods or may be required to reapply as more capacity becomes available. Applications should not be transferable with respect to project location or applicant in order to avoid speculative and surrogate applications by ineligible entities, and to discourage potential applicants from taking a position in the allocation queue before they are prepared to proceed with the project.

The program should also consider accepting applications for a waitlist after the program capacity for the current period has been filled. Such applications should not be processed until allocation is available in order to avoid incurring premature study and reservation expenses for applicants and reviewers. Applicants accepted for the waitlist may be given the option to withdraw (i) if no additional allotment is provided within a defined period, or (ii) if new contract terms are introduced by the utility within a defined period. The utility may choose to issue application fee refunds in some instances.

Interconnection Procedures

One of the most critical barriers to a clean energy future is current policies and processes regarding access for clean local energy to the distribution grid. Throughout the nation, interconnection processes are generally complex, unpredictable, expensive, and extremely time consuming. Successful CLEAN Programs remove these barriers by making interconnection rules, costs, and timeframes reasonable and predictable.

Optimal interconnection processes are predictable and streamlined enough to meet the program's renewable energy deployment targets on schedule. Rather than reactively studying interconnection locations proposed by applicants, the utility can proactively study its distribution grid in advance and make its findings publicly available. Sacramento Municipal Utility District's exemplary interconnection procedures made it possible for one utility staff member to complete interconnection studies for all applications for its 100 MW CLEAN Program within 60 days.[v]

The approximate costs and timeframes associated with interconnection to any location on the grid should be available online before the utility begins to accept applications. This information can be conveyed in the form of maps that highlight which zones of the grid are most and least cost-effective for the utility, based on proximity to load and other factors. The map should provide sufficient grid information to allow applicants to roughly assess the costs associated with various

levels of generation at any qualified location. Utility staff should determine whether to include greater detail or to respond to individual requests for such information. It is highly advisable to include significant detail in the maps if more than a handful of applications are anticipated as this will reduce the burden of reviewing applications for projects that are not viable due to location and/or load and generation profiles associated with location.[vi] Figure 1 below is a good example of a relatively detailed interconnection map. An example of a less detailed interconnection map is included in Appendix A.

Figure 1: Distribution Grid Interconnection Map[vii]
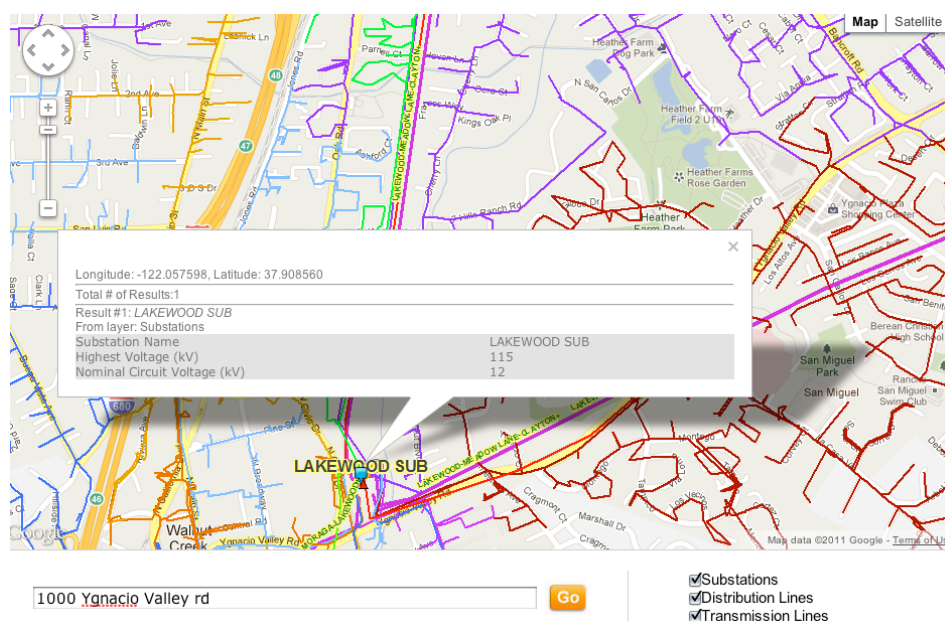
Source: Pacific Gas & Electric (PG&E)

The utility should also provide sufficient information about the interconnection queue for applicants to assess the approximate timeframe for interconnection and determine whether prior active interconnection requests may impact the local load available to be served by a new applicant. In addition, the utility may provide information to facilitate coordination between applicants.

In addition to ensuring that interconnection costs and timeframes will be predictable, the utility should also make sure that interconnection costs are reasonable. In many locations, CLEAN project developers may be required to pay the costs of upgrades to the existing distribution grid (referred to as "network upgrade costs"), beyond what is necessary to interconnect the applicant's project to the existing distribution grid (referred to as "generation tie costs"). When the network upgrade costs are not reflected in evaluations of avoided costs and project costs, CLEAN Contract prices do not reflect the hidden costs to developers (or the hidden value of free upgrades to the utility and its ratepayers). Optimal interconnection policies avoid these complications by allocating to the applicant only the generation tie costs.

To minimize the network upgrade costs of the program, regardless of which party pays, a utility may choose to restrict project eligibility to facilities located in the most cost-effective zones of the grid. In the alternative, a utility may provide for expedited approval for projects that are more cost-effective to interconnect, based on project size or percentage of load on the line segment (e.g. projects below 1 MW or 50% of peak load at the line segment used for interconnection, whichever is more accommodating).

4) Designing Standard Contracts

CLEAN Contract

A CLEAN Contract is a standard power purchase agreement between a utility and a renewable energy facility owner to purchase energy at a predefined, fixed rate for a long duration.

The standard form of the CLEAN Contract should fulfill the needs of all relevant parties in the simplest fashion possible. The key parties are the utility, the developers, and the project investors (including lenders). An optimal standard CLEAN Contract is simple enough to minimize the review effort by developers and investors, yet substantial enough to avoid potential disputes. The level of complexity of the form will depend on the complexity of the program. For example, the Gainesville CLEAN Contract only contains 18 pages, while the Sacramento CLEAN Contract consists of 49 pages.

Table E below highlights key provisions of CLEAN Contracts. Each standard agreement should contain contract language that reflects state and local laws and regulations. The list of contract provisions in Table E below is not meant to be comprehensive and cannot replace guidance by the legal department of the utility and/or the local government. The standard agreements should be circulated for review by likely project developers and potential investors to ensure that the CLEAN Contracts will be straightforward, financeable, and fair to the utility, project developers, and project investors.

Table E: Key CLEAN Contract Provisions:

Contract Provision	Issue
Contract term and termination	Both buyer and seller must be assured of the long-term value and benefits of the agreement. The utility must purchase all energy delivered by the facility and the facility owner must sell all energy that is produced at a fixed rate over the course of a long contract term, typically 20 years. This is an essential feature of CLEAN Programs that makes it possible for developers to secure financing at reasonable rates and gives utilities protection against rising conventional energy prices.
Performance excuses	The contract should not penalize the facility owner for not being able to deliver electricity as expected, provided that the utility should have the right to cancel the contract if the facility owner fails to resolve the problem within a reasonable amount of time if the solution is within the facility owner's control. Since CLEAN project owners are only compensated for delivered energy, CLEAN Programs inherently motivate project owners to promptly resolve performance issues. The contract should also clearly define when the utility will not be responsible for purchasing electricity from the facility. If these circumstances are not appropriately capped, project financing will be impossible for developers to secure.
Environmental attributes	The contract should ensure that the utility will receive the full benefits of the environmental or renewable energy attributes of the purchased electricity. This includes (i) proof that the renewable energy is certified as an eligible resource that meets state and/or local requirements, (ii) conveyance of all renewable energy attributes, such as RECs, and (iii) any reporting obligations necessary to meet state and/or local requirements.

Contract Provision	Issue
Project milestones timeline	The contract should include firm deadlines for submitting proof of permit applications, engineering drawings, equipment orders, and commercial operation date. Firm, reasonable deadlines are necessary in order to ensure that projects proceed as committed. Projects that are not proceeding in a timely fashion should be removed from the queue. While many applicants may be ready to proceed immediately and deliver energy well in advance of the contract requirements, the timeline should reasonably accommodate all good faith applicants and allow for events that are not under the control of the project developer, ranging from natural disasters to utility-driven delays.
Assignment	The contract should be freely assignable to any new owner that meets program eligibility criteria. This will allow program participation by potential facility owners that may sell the facility and/or the real property where the facility is located during the term of the contract.
Form of lender consent	To avoid negotiating individual lender consent agreements for each project, a standard lender consent form should be included as part of the standard contract.

Interconnection Contract

The standard form of interconnection agreement for a CLEAN Program should be very simple, especially for programs that only include smaller installations located close to load, where the system is generally robust. The legal departments of the utility, the local government, potential program participants, and potential lenders should review this form to ensure that it will be straightforward, financeable, and fair to both the utility and the project developers.

The main purpose of the interconnection agreement is to clearly define how the application review, design, and costs of interconnection facilities and distribution grid network upgrades will be allocated between the facility owner and the utility, and how any potential payments will be handled. The agreement should also include estimates of any expected costs to be borne by the project developer and what happens if the costs vary from the estimates.

To minimize the network upgrade costs of the program, regardless of which party pays, a utility may choose to restrict project eligibility to facilities located in the most cost-effective zones of the grid. In the alternative, a utility may provide for expedited approval for projects that are more cost-effective to interconnect, based on project size or percentage of load on the line segment (e.g. projects below 1MW or 50% of peak load capacity of the line segment used for interconnection, whichever is more accommodating).

5) Designing Administration & Evaluation Procedures

CLEAN Programs reduce the administrative burdens of utility staff members who would otherwise be responsible for managing solicitation processes. Optimal program administration procedures minimize both staff obligations and the amount of time it takes for projects to move through the application and approval processes.

To ensure prompt processing of applications, it is helpful to designate a program coordinator to manage coordination between the various utility and local government departments. It is also important to work with all departments within the utility that will be involved with the application review process to determine how to quickly and efficiently process applications and interconnection requests.[viii]

When developing reporting requirements, the main considerations are (i) what data will best help the program administrator measure progress towards program goals, and (ii) how burdensome would the requirement be for program evaluators and program participants. Basic reporting requirements include the status of the application queue, the amount of new capacity online, compliance with cost impact limitations, and progress towards renewable energy targets. Other reporting requirements may include local job creation or estimated greenhouse gas emissions reductions.

The program procedures should also include processes for modifying the program based on the market response, and this information should be publicly available to provide transparency and certainty to the local renewable energy marketplace.

Program designers should consider the following questions about modification procedures:

- What will trigger review or modification of certain aspects of the program?
- Will each change require approval or be made automatically?
- If a modification requires approval, what is the approval process?
- If a modification will be made automatically, what is the modification process?

CLEAN program procedures should include processes for modifying prices based on market response, as measured by the rate at which program capacity is being subscribed at the existing price. Generally, programs include a mechanism for adjusting the price, sometimes as simple as authorizing policymakers to adjust the price for new projects each year. Large programs, however, are well suited to mechanisms that automatically adjust the price for new projects based on a Volumetric Price Adjustment (VPA) mechanism. A VPA mechanism allows pricing for new projects to adjust both up and down depending on the speed at which program capacity is subscribed at the existing price. VPA mechanisms are highly transparent; the associated capacity volumes, time periods, and price adjustments are predefined.

6) Consulting State & Local Government Departments

Although CLEAN Programs are generally designed as utility programs, it is essential to actively engage state and local departments and agencies in the program design process. Utility policymakers should seek the input of all local departments and agencies that have expertise or control over state or local policies that may affect aspects of the CLEAN Program, including the project application review and project development timelines, market responses to pricing, or achievement of the programs goals.

In some jurisdictions, requirements pertaining to renewable energy projects can be complicated, uncoordinated, and duplicative. By involving outside departments and agencies early in the design process, utility policymakers can streamline existing processes and facilitate prompt and efficient reviews of CLEAN projects by all applicable departments.

Planning & Zoning

Planning and zoning departments can support CLEAN Programs by making sure that the community's plans and land use regulations allow and encourage clean local energy in preferred locations, such as rooftops, parking lots, and brownfields. The American Planning Association has created a comprehensive best practices guide for solar planning and zoning[ix] and has compiled a list of resources on wind energy planning.[x] The Interstate Renewable Energy Council, Inc. has developed a useful overview of emerging approaches to rooftop solar permitting.[xi]

Tax

Policymakers must work with state and local tax departments to determine the applicability of state and local tax incentives before setting CLEAN Program pricing. The applicability of tax incentives is a key factor for estimating the market response to CLEAN Program pricing. For example, the CLEAN Program implemented in San Antonio, Texas illustrates how failure to fully understand the applicability of tax incentives can prevent program success. The State of Texas offers a tax exemption for increases in the appraised value of real property caused by the installation of a renewable energy system. Unfortunately, the way the Texas tax exemption was designed was very short-sighted; the tax exemption did not apply to wholesale energy projects, such as CLEAN projects, that interconnect to the distribution grid and deliver all generated energy to the utility. Since the CLEAN Program prices were set under the erroneous assumption that this tax benefit would apply, the prices were too low to attract significant program participation.[xii]

Utility policymakers can also work with the local government's tax department to design local incentives that encourage program participation by certain types of applicants or types of projects.

A summary of state incentives for renewable energy is available at Database of State Incentives for Renewables & Efficiency (DSIRE).[xiii]

Permitting

In many locations, CLEAN project developers must secure permit approvals from local fire code, building code, electrical code, and air district officials before receiving a zoning clearance to build a facility. The great number of agencies involved often results in duplication, inefficiency, and lack of coordination in the permit application process.[xiv] The utility can circumvent many of these

potential roadblocks by engaging the various permitting bodies during the program design process.

Environmental

Many local environmental permitting agencies have a one-size-fits-all screening and review process for renewable energy projects.[xv] This approach is unnecessarily burdensome for CLEAN Projects, especially for small projects and those located on built environments and previously disturbed lands. Policymakers should encourage environmental agencies to create expedited review processes for types of distributed generation projects that are likely to result in a finding of no significant impact, based on technology, project size, and/or location.

Law

Utility policymakers should work with local government legal departments to design the CLEAN Program and the standard contracts. Local government legal advisors can ensure that relevant state and local statutes and regulations are properly considered.

The essence of a CLEAN Program is that it creates a streamlined and predictable process for purchasing clean local energy that reduces costs, risks, timeframes, and administrative burdens.

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[ii] Ibid.

[iii] Sacramento Municipal Utility District (SMUD), Rate Policy and Procedures Manual, Section: Renewable and Self-Generation, Subject: Feed-In Tariff Procedures, No. 8-04, August 5, 2011, *available at* https://www.smud.org/en/business/customer-service/rates-requirements-interconnection/documents/8-04_FITProcedures.pdf.

[iv] Presentation for the California Solar Energy Collaborative on May 11, 2010, Presented by Gary Lawson of Sacramento Municipal Utility District (SMUD), "Hypothesis: A Utility Can Procure Utility-Scale PV for 14.4¢/kWh. SMUD's Feed-In Tariff…A Summary to Date," *available at* http://solar.ucdavis.edu/files/publications/presentations/smud-feed-in-tariff.pdf.

[v] Dave Brown, PE, Distribution System Engineer, Sacramento Municipal Utility District (SMUD), Renewable Distributed Energy Collaborative (REDEC) Workshop in December 2010.

[vi] Sacramento Municipal Utility District, Interconnection Map, Updated December 7, 2009, *available at* https://www.smud.org/en/business/customer-service/rates-requirements-interconnection/documents/InterconnectionMap.pdf; see also, Southern California Edison (SCE), Renewable & Alternative Power, "Renewable Auction Mechanism (RAM)," 2011, *available at* http://www.sce.com/EnergyProcurement/renewables/renewable-auction-mechanism.htm, Note: Requires downloading Google Earth; see also, Pacific Gas & Electric (PG&E), "Solar Photovoltaic (PV) and Renewable Auction Mechanism (RAM) Program Map," 2011, *available at* http://www.pge.com/b2b/energysupply/wholesaleelectricsuppliersolicitation/PVRFO/pvmap/, Note: Requires username and password.

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[xi] Interstate Renewable Energy Council, Inc., "Sharing Success: Emerging Approaches to Efficient Solar Rooftop Permitting, May 2012, available at www.irecusa.org/wp-content/.../Sharing-Success-final-version.pdf.

[xii] L.A. Sinkin, N.A. Jones, Solar San Antonio, "Barriers to Solar in San Antonio Texas: A Report Prepared as part of the Department of Energy's Solar Cities America Program," May 2011.

[xiii] Database of State Incentives for Renewables & Efficiency, 2011, available at http://www.dsireusa.org/.

[xiv] California Energy Commission (CEC), Staff report, "Renewable Power in California: Status and Issues," CEC-150-2011-002, August 2011, p. 67 – 69, available at http://www.energy.ca.gov/2011publications/CEC-150-2011-002/CEC-150-2011-002.pdf.

[xv] Ibid, pg. 69.

Appendix A – Policies & Procedures of Sacramento's CLEAN Program

Sacramento Municipal Utility District (SMUD), the municipal utility of Sacramento, California, is the sixth largest publicly owned utility in United States[i] and serves approximately 4% of California's electric load.[ii] As a result of the leadership of its staff members, SMUD implemented a robust, well-designed CLEAN Program (locally known as a feed-in tariff), which is open to all renewable energy technologies and has a total program size cap of 100 megawatts.[iii] For context, it is worth nothing that the proportional expansion of SMUD's 100 megawatt program across the State of California would result in 2,500 megawatts of clean local energy.

Table 1: SMUD CLEAN Program Description

	SMUD's CLEAN Program	Source
Program Size	100 MW	Sacramento Municipal Utility District (SMUD), Feed-in Tariff for Sale of Customer Sited Generation to SMUD, Questions and Answers, October 28, 2010, pg. 2, available at https://www.smud.org/en/business/customer-service/rates-requirements-interconnection/documents/FeedInTariffFAQs.pdf.
Eligible Project Technologies	Any eligible renewable energy project, or qualifying combined heat and power installation, certified as such by the California Energy Commission (CEC)	Sacramento Municipal Utility District (SMUD), Feed-in Tariff for Sale of Customer Sited Generation to SMUD, Questions and Answers, October 28, 2010, pg. 2, available at https://www.smud.org/en/business/customer-service/rates-requirements-interconnection/documents/FeedInTariffFAQs.pdf.
Project Size Cap	5 MW	Sacramento Municipal Utility District (SMUD), Feed-in Tariff for Sale of Customer Sited Generation to SMUD, Questions and Answers, October 28, 2010, pg. 1, available at https://www.smud.org/en/business/customer-service/rates-requirements-interconnection/documents/FeedInTariffFAQs.pdf.
Amount of Time to Fill Program Capacity With Applications	7 days	Dave Brown, PE, Distribution System Engineer, Sacramento Municipal Utility District (SMUD), Renewable Distributed Energy Collaborative (REDEC) Workshop in December 2010.
Average Time to Process Applications through Interconnection	5 to 6 months	Phone interview with Sherri Eklof, Program Manager at Sacramento Municipal Utility District (SMUD) on October 31, 2011. Note: The program opened in January 2010 and all agreements were signed by June 2010 (this time included the interconnection review).
Amount of Time to Complete Interconnection Studies for All Program Applications	60 days	Dave Brown, PE, Distribution System Engineer, Sacramento Municipal Utility District (SMUD), Renewable Distributed Energy Collaborative (REDEC) Workshop in December 2010.
Number of Full-Time Employees Required to Administer the Program	Maximum of 2 full-time employees. No new staff hired.	Phone interview with Sherri Eklof, Program Manager at Sacramento Municipal Utility District (SMUD) on October 31, 2011. Note: One employee was working on interconnection issues and the other was working on power contracts. No new employees were hired.

Table 2: SMUD CLEAN Program Policies, Procedures, and Documents:

	Components	# Pages	Source
Policies & Procedures Manual	○ Application process and timeline ○ Application requirements ○ PPA options and requirements ○ Interconnection procedure and queue info availability ○ Pricing	16	Sacramento Municipal Utility District (SMUD), Rate Policy and Procedures Manual, Section: Renewable and Self-Generation, Subject: Feed-In Tariff Procedures, No. 8-04, August 5, 2011, *available at* https://www.smud.org/en/business/customer-service/rates-requirements-interconnection/documents/8-04_FITProcedures.pdf.
Interconnection Guidelines	Interconnection, operating and metering requirements	46	Sacramento Municipal Utility District (SMUD), Rate Policy and Procedures Manual, Section: Service Connection and Collection, Subject, Interconnection Guidelines, No. 11-01, August 5, 2011, *available at* https://www.smud.org/en/business/customer-service/rates-requirements-interconnection/documents/11-01InterconnectionGuidelines.pdf.
Price Schedule	Price schedule and time-of-delivery periods	1	Sacramento Municipal Utility District (SMUD), SMUD Feed-In Tariff for Distributed Generation (FIT), Effective January 1, 2011, *available at* https://www.smud.org/en/business/customer-service/rates-requirements-interconnection/documents/FIT-Pricing.pdf.
Application Items	○ FIT Application (1 page) ○ Interconnection Application (9 pages) ○ Interconnection Review Fee ($1400) ○ Reservation Deposit ($20/kW x generator output capacity)	10	Sacramento Municipal Utility District (SMUD), Feed In Tariff (FIT) Application (SMUD Form 3259), December 2009, *available at* https://www.smud.org/en/business/customer-service/rates-requirements-interconnection/documents/3259.pdf; Sacramento Municipal Utility District (SMUD), SMUD Generating Facility Interconnection Application (SMUD Form 2655), June 2011, *available at* https://www.smud.org/en/business/customer-service/rates-requirements-interconnection/documents/2655.pdf.
CLEAN Contract	Standard form of power purchase agreement	49	Sacramento Municipal Utility District (SMUD), Feed-in Tariff Standard Form Power Purchase Agreement, *available at* https://www.smud.org/en/business/customer-service/rates-requirements-interconnection/documents/SMUDFeedInTariffPPA.pdf.
Interconnection Agreement	Standard form of interconnection agreement	19	Sacramento Municipal Utility District, Feed-in Tariff Standard Form Interconnection Agreement, available at https://www.smud.org/en/business/customer-service/rates-requirements-interconnection/documents/FITIA.pdf.
Interconnection Map	The map shown on the following page indicates the best locations for interconnection on the SMUD Distribution System	2	Sacramento Municipal Utility District, Interconnection Map, Updated December 7, 2009, *available at* https://www.smud.org/en/business/customer-service/rates-requirements-interconnection/documents/InterconnectionMap.pdf.

Figure 1: SMUD Distribution Grid Interconnection Map[iv]

ESTIMATED LOW COST INTERCONNECTION

SUBSTATION CAPACITY (UNCONSTRAINED)

> 5MW
≤ 5MW
≤ 3MW
≤ 2MW
≤ 1MW
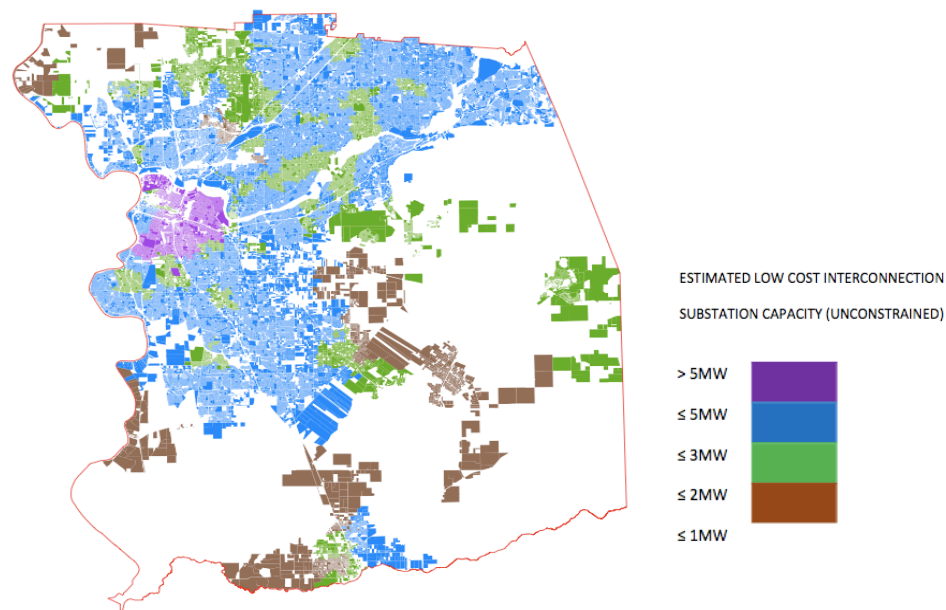
Source: Sacramento Municipal Utility District

References for Appendix A

i Tim Tutt, Sacramento Municipal Utilities District, SMUD's Successful Value-Based Feed-In Tariff, May 26, 2011, *available at* http://www.cleanenergystates.org/assets/2011-Files/States-Advancing-Solar/CESA-Webinar-5262011-Tim-Tutt.pdf.

ii SMUD serves 1.4 million people, Source: Sacramento Municipal Utilities District, "Fingertip Facts," pg. 5, *available at* https://www.smud.org/en/about-smud/; the population of California is roughly 37 million people, Source: U.S. Census Bureau, California Quick Facts, 2011, *available at* http://quickfacts.census.gov/qfd/states/06000.html.

iii Sacramento Municipal Utility District (SMUD) website, SMUD's Feed-In Tariff, 2011, *available at* https://www.smud.org/en/business/environment/solar-for-your-business/feed-in-tariffs.htm.

iv Sacramento Municipal Utility District, Interconnection Map, Updated December 7, 2009, *available at* https://www.smud.org/en/business/customer-service/rates-requirements-interconnection/documents/InterconnectionMap.pdf.

Appendix B – Policies & Procedures of Gainesville's CLEAN Program

Gainesville Regional Utilities (GRU) serves 90,000 electric customers in the **City of Gainesville, Florida**.[i] The city's commitment to environmental sustainability, as demonstrated by its membership in ICLEI[ii] and its adoption of the U.S. Conference of Mayors' Climate Protection Agreement,[iii] inspired a lively conversation about how the community could change its local energy sources to reduce greenhouse gas emissions. After implementing several typical programs to increase the amount of renewable energy in the community, including a rebate program and a net-metering program, GRU decided it needed to implement a solar CLEAN Program (locally known as a "feed-in tariff") in order to achieve the levels of local solar that it desired. Drawing upon the example of the successful German CLEAN Program, GRU enacted the first cost-based CLEAN Program in the U.S. in March of 2009.[iv]

Table 1: GRU CLEAN Program Description

	GRU's CLEAN Program	Source
Program Size	4 MW per year	Gainesville Regional Utilities, Solar FIT, 2011, available at https://www.gru.com/OurCommunity/Environment/GreenEnergy/solar.jsp.
Eligible Project Technologies	Solar PV	Gainesville Regional Utilities, Solar FIT, 2011, available at https://www.gru.com/OurCommunity/Environment/GreenEnergy/solar.jsp.
Project Size Cap	Up to 1 MW ground-mounted, up to 300 kW rooftop or pavement-mounted	Gainesville Regional Utilities, Solar FIT, 2011, available at https://www.gru.com/OurCommunity/Environment/GreenEnergy/solar.jsp.
Amount of Time to Fill Program Capacity With Applications	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.	"Gainesville, Florida's Feed-in Tariff Experience," presented by Pegeen Hanrahan, P.E. and Mayor of Gainesville (2004-2010, term-limited) at the Applied Solutions Annual Conference in November of 2010, available at http://www.drivecms.com/uploads/appliedsolutionsworkshop.com/1085203963Hanrahan%20%20Applied%20Solutions%20FIT %20Session%20Hanrahan%20Nov%2011%202010.pdf.
Average Time to Process Applications through Interconnection	9-10 months (can be as fast as three months for smaller projects)	Phone Interview with Rachel Meek, Program Manager at Gainesville Regional Utilities (GRU), on November 1, 2011.
Amount of Time to Complete Interconnection Studies for All Program Applications	4-6 weeks	Phone Interview with Rachel Meek, Program Manager at Gainesville Regional Utilities (GRU), on November 1, 2011.
Number of Full-Time Employees Required to Administer the Program	One person. No new staff hired.	Letter from John Crider, Strategic Planning Engineer, Gainesville Regional Utilities, "Implementing the Gainesville Feed-in Tariff," available at http://www.clean-coalition.org/storage/references/Letter%20from%20CLEAN%20Gainesville%20administrator%20John%20Crider%205%20Jul%202011.pdf.

Table 2: GRU CLEAN Program Policies, Procedures, and Documents:

Type	Components	# Pages	Source
Policies & Procedures Webpage	○ Application process timeline ○ Application requirements	1	Gainesville Regional Utilities, "Solar FIT," accessed November 14, 2011, *available at* https://www.gru.com/OurCommunity/Environment/GreenEnergy/solar.jsp.
Application Items	○ Solar FIT Application (1 page) ○ System 1-line diagram ○ Proof of property ownership or leasehold where the system is to be installed ○ Contractor license and solar installer certification ○ GRU vendor form (1 page) ○ W9 tax form (1 page) ○ Proof of liability insurance ○ Application fee and deposit 　•Systems 10 kW or less: $500 non-refundable processing fee 　•Systems over 10 kW: $1,200 non-refundable processing fee and a reservation deposit ($30/kW times proposed system DC capacity)	3	Gainesville Regional Utilities, Solar Feed In Tariff (FIT) Application, *available at* https://www.gru.com/Pdf/SolarFIT/GRU%20FIT%20App.pdf; Gainesville Regional Utilities, Solar Feed-In Tariff Vendor Form, *available at* https://www.gru.com/Pdf/SolarFIT/VendorApplicationforFIT.pdf; W-9, *available at* https://www.gru.com/Pdf/SolarFIT/FederalTaxFormW9.pdf.
CLEAN Contract	Standard form of power purchase agreement	18	Gainesville Regional Utilities, Feed in Tariff Solar Energy Purchase Agreement, SEPA V000310 https://www.gru.com/Pdf/SolarFIT/2010%20Watermarked%20Sample%20SEPA%20FINAL%20Clean.pdf.
Interconnection Agreement	Standard form of interconnection agreement	8	Gainesville Regional Utilities, Agreement For Interconnection and Parallel Operations of Distributed Resources, September 31, 2010, *available at* http://www.gru.com/Pdf/Photovoltaic5.pdf.

References for Appendix B

[i] Gainesville Regional Utilities (GRU), About GRU, 2011, *available at* https://www.gru.com/AboutGRU/default.jsp.

[ii] "Gainesville: The Nation's First Solar Feed-In Tariff," presented at the University of Boulder by Pegeen Hanrahan, P.E. and Mayor of Gainesville from 2004-2010 (term limited in 2010), *available at* http://www.communityinpower.com/resources/Pegeen.Boulder.pdf.

[iii] Ibid.

[iv] Database of State Incentives for Renewables & Efficiency, U.S. Department of Energy, Interstate Renewable Energy Council, and North Carolina Solar Center, 2011, *available at* http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=FL77F&re=1&ee=1.