Solar and Resiliency: Integrative Financing Strategies for SolSmart Communities

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Introduction

The purpose of this brief is to provide existing and potential SolSmart communities with an approach for expanding solar and resiliency project financing options by integrating their solar energy goals with their community resiliency goals. If you are reading this brief, you likely have already taken significant steps to increase your community’s receptivity to solar, and you have likely started to see expanding solar adoption. At the same time, many communities have developed or are considering developing resiliency goals and plans, but have not taken the step of integrating their solar aspirations with those goals and plans. All communities struggle to gather the financing necessary to achieve their solar and resiliency aspirations. This brief offers good news: Integrating your solar and resiliency plans can attract incremental financing that benefits both goals.

Motivations for preparing a resiliency plan vary, but many communities are driven by the possibility that natural disasters, climate-driven extreme weather, or national security threats will present their community with a disruptive event that poses health and safety risks. While ensuring an adequate energy supply during and after a disruptive event is a necessary part of a resiliency solution, a community’s resiliency goals often focus on ensuring health and safety far more broadly. Identifying the requisite energy solution thus depends on first understanding the community’s overall resiliency goals.

The brief first places community energy resilience planning into the context of a stakeholder-driven identification of community goals. Once goals are established and understood, broad
community support for specific energy resiliency projects becomes possible. The brief next takes up the process of scoping the energy resiliency project. Scoping the project begins by defining the energy requirements during a resilience event and continues by scoping the energy resources that will be required to meet the requirements. The energy resources required often include solar, storage, and demand-side measures, and may also include some fossil generation resources. The third portion of the brief turns to financing the project. Our research concluded that obtaining financing is the critical point at which resiliency projects often lose momentum. Given the critical role of financing, the rest of the brief focuses on lessons learned about financing, illustrated by three case studies that provide perspective on how financial support for community projects has been built or is still being built.

Several useful volumes offer summaries of local energy resiliency planning efforts, and these volumes often address financing in part. The Institute for Sustainable Communities draws lessons from case studies of local efforts in New York, Baltimore, Duluth, and San Francisco.\(^3\) Vote Solar reports on progress in deploying solar and storage for local resiliency in 10 California-based microgrids.\(^4\) The National Institute of Standards and Technology (NIST) produced two volumes to guide local resiliency planning.\(^5\) In our case studies, we look at three places with different goals and with different financing opportunities: Houston, Texas; Coventry, Connecticut; and Santa Barbara County, California.

**The Community Resiliency Context: Establishing Goals**

Entire volumes offer guidance on community resiliency planning, and we identified a few in the introduction. Best practice resources indicate that while goals vary, most communities include health, safety, affordability, equity, and sustainability goals. NIST produced a very useful resiliency planning guide in 2016 that has become the basis of many community planning efforts. The six-step process recommended by NIST is shown in Figure 1 on the following page.\(^6\)

The National Renewable Energy Laboratory (NREL) and the U.S. Agency for International Development (USAID) collaborated in 2019 to produce a useful survey of the threats to energy systems that sets the stage for planning to meet those resiliency threats. Figure 2 (p. 4) shows the planning process recommended by NREL/USAID.\(^7\)

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6 National Institute for Standards and Technology, 2016

7 National Renewable Energy Laboratory and U.S. Agency for International Development, 2019
Figure 1: The NIST Six-Step Resiliency Planning Process
The case studies we review later in this brief each followed from resiliency, sustainability, and energy plans that relied upon key parts of the NIST-recommended process. In each case, officials held community meetings with a broad set of stakeholders to acquire a broad understanding of community needs, and each sought to align proposed energy resilience projects with community goals. Community goals differ but sustainability, equity, and resiliency goals are common motivators.

For example, the City of Santa Barbara's efforts arguably started with climate and sustainability planning that ultimately came to encompass energy resiliency plans. Figure 3 illustrates the breadth of Santa Barbara's community sustainability goals.8

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In Houston, public health and equity impacts are prominently featured in the resiliency plan. Figure 4 depicts the scope of public health concerns that are informing Houston’s efforts today.  

Figure 4: Health Impacts Experienced by Certain Populations in Houston in Resiliency Situations

**Identifying Energy Resiliency Projects: From Goals to Community Support for a Project**

As priority disruption scenarios and preferred resiliency goals become clear, investigating potential energy resiliency solutions becomes possible. The NREL/USAID work makes clear that threats to the bulk electric system, as well as local threats to areas of the distribution system, need to be considered in a comprehensive analysis. However, this brief is intended to focus on local resiliency projects that support local goals with local projects, so our discussion of resiliency project planning will be limited to local project examples.

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Translating local goals into a stakeholder discussion of potential project options is well-illustrated by Figure 5, an example taken from the Coventry, Connecticut, microgrid project scoping. Figure 5 shows how the concerns of the Town of Coventry, which include a concern for promoting local resiliency, are combined with state goals and distribution utility goals to characterize elements of a potentially successful project. The Town of Coventry is a SolSmart Gold designee and is featured in more detail in the case study section of this brief.

Figure 5: Coventry Stakeholder Microgrid Project Scoping Options

Reliable electricity solutions require that the supply of electricity be adequate to meet demand at every moment. Any assessment of resiliency project electricity requirements includes both an assessment of the electricity needs at every moment and an assessment of electricity resource options. Durham, North Carolina, a SolSmart Gold designee, had the good fortune of receiving technical assistance from a team at NREL. NREL experts applied the lab’s REopt Platform to identify solar and storage options for Durham that met the city’s resiliency goals. Figure 6 shows how the REopt Platform can be used to assess resiliency project options. Note that REopt includes the familiar generation and storage options used in resiliency projects. Also of note is the attention the platform provides to resources on the demand side of the power system: both dispatchable technologies (like heating and cooling) and conservation measures.

The combination of supply- and demand-side resources that meet the resiliency need can be thought of as a portfolio with complementary availabilities and capabilities. A combination of

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10 Connecticut Public Utilities Regulatory Authority, Docket No. 20-03-17, Technical Meeting on July 1, 2020 [Presentation], slide 5, [link](http://www.dpuc.state.ct.us/dockcurr.nsf/8e6fc37a54110e3e852576190052be64d/80be96d8e43577908525857006d234a/$FILE/Coventry%20Microgrid%20Presentation_FINAL.pdf)

solar and storage is often considered as part of a portfolio, as it was in the Coventry and Durham examples. Many local resiliency solutions also include some locally sited diesel generation, but community sustainability and public health goals often drive a desire to limit fossil generation in proposed resiliency projects. NREL’s assessment tool accommodates conservation and dispatchable demand control as part of such projects, and these resources can often improve the cost-effectiveness of potential solutions.

Figure 6: The NREL REOpt Resiliency Project Assessment Tool

Across the country, in Humboldt County, California, the success of the Blue Lake Rancheria microgrid project demonstrates how innovative deployment of energy resources can deliver real local resiliency value. Figure 7 summarizes the benefits garnered by the Blue Lake Rancheria project when the risk of wildfires prompted Pacific Gas & Electric to order a public safety power shutoff (PSPS) in Humboldt County.12 During the two-day outage, the microgrid, sited on a small Native American reservation, provided enough power for a shelter for local residents with medical needs requiring electricity, as well as a central command center for fire crews. The success of this project has led Humboldt County to pursue additional projects.13

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Financing the Community Resiliency Project: Three Case Studies

Perhaps the most difficult barrier faced by communities as they move from project planning to project realization is the challenge of building the financial backing to realize their chosen project. The good news is that combining solar and resiliency goals and plans can help to overcome financing limitations. This section provides case studies of three very different places that are in different stages of planning and that have different potential sources of financing to support their projects. We start with the City of Houston, where sustainability and resiliency planning has set the stage for financing options. We then consider Coventry, where state priorities for resilient microgrids have led to a unique financing opportunity and a project is imminent. We conclude with Santa Barbara County, where the combination of fire risk, aggressive local and state sustainability goals, and unique electric system challenges come together in projects that address a wide range of needs and access several financing sources.
Houston: Planning for Resiliency and Sustainability

The City of Houston shows great promise in supporting increased energy resilience. In response to challenges it has faced, especially extreme weather events, Houston has demonstrated a willingness to engage in planning, and to take advantage of complementary federal and state policies to promote greater resilience.\textsuperscript{14}

Mayor Sylvester Turner, who chairs the U.S. Climate Mayors initiative, has committed to making his city carbon neutral by 2050. In April 2020, to that end, the Turner administration initiated a data and stakeholder driven process (Figure 8)\textsuperscript{15} and produced two important planning documents: a Climate Action Plan\textsuperscript{16} and a “Resilient Houston” strategy.\textsuperscript{17}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure8.png}
\caption{Houston Climate Action Plan Identification of Goals}
\end{figure}

\textsuperscript{14} In August 2017, Hurricane Harvey hit Texas, dropping as much as 60 inches of rain and causing over 2 million people to lose electric service. Harvey produced catastrophic flooding in Houston, which occupies an area slightly over 650 square miles and has approximately 2.3 million inhabitants. It produced an estimated $125 billion in damage, making it the costliest tropical cyclone in history. See National Oceanic and Atmospheric Administration, \textit{U.S. billion-dollar weather and climate disasters: Events, 2018} \url{https://www.ncdc.noaa.gov/billions/events/US/1980-2017}.

\textsuperscript{15} City of Houston Office of Sustainability, 2020.

\textsuperscript{16} City of Houston, TX, Office of Sustainability, \textit{Climate action plan}, p. 43, April 2020 \url{http://www.greenhoustontx.gov/climateactionplan/index.html}. In the Resilient Houston plan (see p. 33), the city recognized that the demand for renewable energy is growing but that “renewables-focused companies represent just 3% of the total number of businesses in Houston’s energy sector overall.”

\textsuperscript{17} Office of the Mayor, \textit{Mayor Turner launches the Resilient Houston strategy and signs historic executive order to prepare the city for future disasters}, February 12, 2020, \url{https://www.houstontx.gov/mayor/press/2020/resilient-houston-strategy.html}
“Energy Transition” is one of the Climate Action Plan’s four key strategies. Increasing investment in “Renewable and Resilient Energy Systems” is the strategy’s first goal:

The deployment of distributed resources will not only decrease emissions, but also make Houston’s electric power system more resilient to natural disasters or brownouts that disrupt power transmission from the grid.

“Resilient Houston” likewise recognizes the importance of more flexible energy systems when it states that “key drivers of the global energy transition will be the electrification of systems and affordable storage of energy.”\(^\text{18}\)

**Policy Support**

Houston businesses and homeowners can currently take advantage of various federal, state, and municipal policies that support resiliency projects. For example, property assessed clean energy (PACE) financing enables commercial property owners in Houston to access financing for energy upgrades which they repay through a special assessment on their property taxes. In 2017, Houston’s first TX-PACE project was completed by the Regency Inn & Suites hotel, the installation of a 45 kW solar system designed to offset part of the hotel's energy usage.\(^\text{19}\) Financed over an 18-year term, the $135,000 project is expected to produce energy and tax savings of more than $250,000 over its useful life.

Houston has also made use of federal tax policy to support resiliency projects. In August 2019, Houston entered into an agreement with Sunnyside Energy, providing it with a 240-acre property used as a municipal landfill to locate a 70 MW solar farm.\(^\text{20}\) In addition to being provided the land by the city, the project benefits from the area having been designated a Qualified Opportunity Zone, an economically distressed community where new investments, under certain conditions, may be eligible for preferential tax treatment.\(^\text{21}\) There is also currently a 26% federal tax credit for the overall solar panel cost that includes the cost of installation.\(^\text{22}\)

There are financing approaches available for solar projects in Houston. Texas’ LoanSTAR is a low-interest revolving loan program that finances energy-related cost reduction retrofits for state, public school, college, university, and nonprofit hospital facilities.\(^\text{23}\) The Fannie Mae Green Financing loan program provides mortgage financing to apartment buildings and cooperatives to finance energy and water efficiency property improvements. Its green financing

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\(^{18}\) Office of the Mayor, 2020.


programs include preferential pricing for loans secured by a property with an eligible Green Building Certification.\(^{24}\)

Texas law has also addressed several significant barriers to the residential deployment of solar systems that would take advantage of the city’s solar potential.\(^{25}\) In response to homeowners associations limiting the placement of solar panels, Texas law prohibits, with several exceptions, homeowner associations from banning individual solar installations.\(^{26}\) Texas law also provides a tax exemption for the amount of the appraised property value increase arising from the installation or construction of solar energy for on-site use and devices used to store that energy.\(^{27}\)

Another informal policy that encourages resiliency is the limited form of net metering available to some Houston electricity customers that have solar. Essentially, companies that sell energy are willing to credit customers who produce energy with their solar installations for some of their bill. Because the energy portion of a typical distribution utility rate is only part of the overall cost paid by a customer, the credit amount will only reflect that fraction of the bill that a customer pays.

Houston’s residential and commercial building codes encourage greater building energy efficiency, which, while not directly related to accommodating solar, is an important prerequisite to the efficient use of distributed resources like solar and energy storage.\(^{28}\) The city has also adopted an ordinance that provides for partial tax abatement on LEED-certified commercial buildings.\(^{29}\)

**Growing Interest in Resiliency**

There is growing evidence of interest in resiliency services around Texas. For example, Joint Base San Antonio, managed by the U.S. Air Force, has contracted for a 20 MW microgrid and energy resiliency and efficiency improvements. During a power outage, the islanded microgrid is designed to provide power to the facility, “using 11.7 MW of new solar photovoltaics, a 4 MW/8

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\(^{25}\) Houston is well positioned to generate greater amounts of solar power within city limits. Google’s Project Sunroof analysis, a survey of the number of Houston buildings capable of accommodating solar, estimates Houston’s solar potential to be 10 million megawatt-hours (MWh) per year for small building rooftops and up to 18 million MWh if larger building rooftops are included. City of Houston Office of Sustainability, 2020, p. 44.


MWh battery system, and 4 MW of gas-fired generators.”\textsuperscript{30} It is also expected to offset power costs for the base.

In August 2020, the City of Houston awarded a contract to Enchanted Rock LLC to provide electrical resiliency services to the city’s Northeast Water Purification Plant Expansion facility. The contract is for facility backup for 100% of the required finished water production capacity during outages.\textsuperscript{31}

Earlier this year, Shell contracted with Black & Veatch to develop a microgrid comprised of 300 kW of solar, a 127 kW natural gas generator, a 250 kW/1,050 MWh lithium ion battery, and a 250 kW load bank for Shell’s Technology Center in Houston.\textsuperscript{32} The microgrid is designed to power the 2000-acre campus and serve as a research tool for the 2,000 Shell scientists housed by the technology center. There are also plans to integrate the microgrid with an additional battery storage and electric vehicle charging system. The microgrid will also provide energy to the main grid and is expected to produce revenue for the project owners.

**Further Advancing the Value Proposition for Resilience**

While there is interest and certainly some solar project development underway in Houston, there may be further opportunities to recognize the resilience benefits and improve the value proposition for adopters. The resiliency projects underway at Joint Base San Antonio, at the water purification facility in Houston, and at Shell in Houston provide a good foundation for future resiliency projects in Houston, but one additional source of financing may help with the next project in Houston.

One of Houston’s challenges associated with energy use is its compliance with the federal Clean Air Act. The Houston-Galveston-Brazoria-area counties are in non-attainment status for ozone, one of the act’s regulated pollutants. To the degree that Houston can transition to greater use of renewable energy for building and transportation-related energy needs, the city would stand to benefit from the related reductions in air emissions.\textsuperscript{33} Recognizing those air pollution reduction benefits would serve to increase the resilience value proposition for these next adopters.

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Coventry, Connecticut: Microgrid Programs Lead to Resiliency Projects

Coventry is a town in Northeastern Connecticut, about 20 miles from the capital of Hartford. The town’s appeal includes strong ties to its historic past of farms and museums, but its citizens also have their eye on the future. The town has made significant commitments to clean energy and the environment. Coventry has earned a SolSmart Gold designation with:

- Streamlined processes for solar permitting and inspections;
- Hosting a “Solarize” campaign to publicize group discounts and affordable financing options; and
- Existing solar installations at key town facilities.

A Commitment to Sustainability and Resilience with Microgrids

The state of Connecticut has also made a substantial commitment to policies that advance sustainability and resilience. The zero emissions renewable energy credit (ZREC) program was passed into law in 2011 and established 15-year contracts for renewable generation projects in Connecticut. The ZREC program has been renewed and expanded over the years by the Connecticut General Assembly and has primarily served to promote solar generation in the state. In addition, Connecticut has been seriously affected by severe storms over the past decade, including several that resulted in prolonged and widespread electricity outages. A 2012 law created a statewide Microgrid Grant and Loan Program for municipalities, run by the Connecticut Department of Energy and Environmental Protection. Under this program, the state provides bond funding for municipal energy projects to ensure that critical facilities can function during extended outages. This law was recently updated, following storm outages in the summer of 2020, to include resilience and prioritization of vulnerable communities explicitly in the program.

Coventry’s Proposed Microgrid

The town of Coventry applied for the fourth round of Connecticut Microgrid Grant and Loan Program in 2017 and its bid was selected as a winner of a $4 million grant in April 2019. In addition to 366 kW of existing solar at the relevant sites, the Coventry microgrid project includes 288 kW of new solar capacity, 500 kW/1,300 kWh of lithium ion battery storage, four 125 kW natural gas combined heat and power (CHP) generation units, and advanced energy management tools. The project would be designed to serve the electrical needs of Coventry’s

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34 Town of Coventry, CT. (n.d.), Coventry past, present & future, https://www.coventryct.org/271/About-Coventry
36 SolSmart, n.d.
38 The town of Coventry filed a petition with the Connecticut Public Utilities Regulatory Authority in March 2020 to change the configuration of the electric grid in the relevant area and the metering arrangement for the customer accounts. In late 2020,
middle school, high school, police station, fire station, town hall, cell tower, and low-income senior housing owned by the Coventry Housing Authority. The system was designed to operate as an independent microgrid for up to 19 days. In addition, the combined heat and power units would provide heating to the two schools and would allow the retirement of existing backup diesel generators.

This project was designed based on an RFP issued by the Town of Coventry. Two developers jointly responded with the winning project design and formed Coventry Microgrid LLC to undertake the project. The town plans to sign a long-term “Microgrid Power Purchase Agreement” with Coventry Microgrid to provide power even when the grid operates normally.

Coventry’s project would allow for significant resilience benefits in case of an extended electricity system outage: continued operation of critical town services and communications, emergency shelter at the schools, and guaranteed comfort for vulnerable elderly citizens. Broader social benefits include lower electricity emissions due to the new solar generation and lower local pollutants from reduced diesel backup operation. The town would also benefit financially from lower electricity and fossil fuel bills, because of (1) lower electricity consumption from the grid, (2) demand charge management provided by the storage and dispatchable CHP units, and (3) lower heating bills due to the thermal output of the CHP.

Coventry’s project was originally slated to be completed by September 2021 but will likely be delayed by the COVID-19 pandemic.

Santa Barbara County: Wildfire Risk, Sustainability Goals, and Resilience at an End-of-the-Grid Location

Santa Barbara County began preparing a climate action strategy in 2009 and soon followed up with energy action plans, most notably the Energy and Climate Action Plan in 2015 and the Strategic Energy Plan in 2019. The plans include an impressive variety of policy elements on both the supply and demand sides of the electricity system, many of which are supported by California’s aggressive climate programs and policies. While the broad scope of policies in play in Santa Barbara are important, we will focus here on how the reality of wildfire risk has accelerated solar and resiliency efforts.

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regulators conditionally granted the petition, pending approval of the changes by the Connecticut Department of Energy and Environmental Protection under the Microgrid Grant and Loan Program. Connecticut Public Utilities Regulatory Authority, Docket No. 20-03-17, Decision on December 9, 2020. [Link]

39 County of Santa Barbara, CA, Energy and climate action plan, May 2015, http://www.countyofsbc.org/ecap/guiding-documents.sbc; and County of Santa Barbara Sustainability Division, Strategic energy plan for the County of Santa Barbara, August 2019, [Link].

40 See the County of Santa Barbara’s Sustainability web page for descriptions of all programs and policies at: [Link].
The Strategic Energy Plan followed the horrific Thomas Fire of 2017-2018, and placed a sharpened focus on the resiliency needs of Santa Barbara. The Strategic Energy Plan explains: “In the wake of the 2017-2018 Thomas Fire and accompanying Montecito debris flows, and in preparation for imminent Public Safety Power Shutdown events, the need for reliability and resiliency of the local electric grid is imperative.” The county further notes, “Likewise, increasing the availability and use of local renewables will provide the area with clean energy options that do not currently exist, and support the County’s Energy and Climate Action Plan (ECAP) goals.”

The cities of Goleta and Carpinteria have participated with the County of Santa Barbara in its planning process, and the city of Santa Barbara has pursued a parallel and related planning process. The city of Santa Barbara describes its goals as follows: “We support a sustainable, healthy, and safe Santa Barbara through reducing the City’s carbon footprint, managing energy and materials use, transitioning to renewable energy sources, and building local climate resiliency.”

Two projects within the county of Santa Barbara that promote resiliency and sustainability illustrate the fruits of the planning efforts to date.

**Promoting Resiliency at Santa Barbara County Schools**

The Santa Barbara County School District signed a contract in 2020 with Engie to promote resiliency, sustainability, and cost savings by deploying solar at 14 schools, along with battery storage at three high schools, one junior high school, and critical school district buildings. The school district, assisted by Clean Coalition and Energy Sage, identified the energy needs for continuing operations during outages caused by PSPS events and issued an RFP for proposals. Engie was able to come back with a proposal for a contract that allows for continued operation of critical school facilities during outages while providing the district with energy cost savings.

The installed storage batteries will cycle to take advantage of SCE’s time-of-use rates by maximizing off peak usage and minimizing on peak usage. Optimized use of the solar and installed storage come with a 28-year guaranteed contract that decreases the district’s energy costs from current levels and offers resiliency benefits. With wildfire risks and PSPS events becoming more frequent, the resiliency value of the system is obvious. The schools and other key facilities will now be able to “island” and keep electricity on so that schools can stay open during

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41 County of Santa Barbara Sustainability Division, 2019, p. 4.
42 County of Santa Barbara Sustainability Division, 2019, p. 4.
43 City of Santa Barbara Sustainability and Resilience Department (n.d.), Our commitment, https://sustainability.santabarbaraca.gov/
45 To read about the needs assessment and resiliency valuation tool used in this analysis, see Clean Coalition, (n.d.), Santa Barbara Unified School District (SBUSD) solar microgrids, https://clean-coalition.org/community-microgrids/goleta-load-pocket/santa-barbara-unified-school-district/
events and can offer the community additional islands of resiliency. Finally, the project contributes to Santa Barbara County’s aggressive sustainability and decarbonization goals.

**Promoting Resiliency in a Capacity-Constrained Area with Storage**

The Vallecito Energy Storage Resilience Project adds a second significant element to the Santa Barbara resilience effort.46 The 10 MW/40 MWh Vallecito Battery Energy Storage System (BESS) is located in the Carpinteria Valley, which is within the Goleta Load Pocket. As shown in Figure 9 on the following page,47 the Goleta Load Pocket is at the northwestern edge of Southern California Edison’s (SCE) service territory, and has been targeted as a vulnerable area by SCE and the California ISO (CAISO).

The challenging nature of the Goleta Load Pocket is explained in SCE reliability testimony given to the California Public Utility Commission in April 2019.48 The transmission line serving the load pocket goes through mountainous terrain with a high risk of fire. Furthermore, the towers supporting the transmission have been damaged in previous wildfire and mudslides, making the risk of power loss even greater. While undergrounding transmission is a potential option, it is very expensive, which makes local resilience projects that can avoid that cost valuable.

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47 Southern California Edison, Testimony in support of its application for approval of the results of its 2018 Local Capacity Requirements request for proposals (Application No. 19-04-016), April 22, 2019, https://docs.cpuc.ca.gov/PublishedDocs/SupDoc/A1904016/2040/283296439.pdf
The value levers that make the Vallecito project cost-effective include:

- A capacity contract with Southern California Edison, which helps protect electric system reliability in the Goleta Load Pocket during locally constrained conditions, precipitated by resiliency risks emanating from wildfire and PSPS events;
- potential electric system risks resulting from degrading transmission towers; and
- the arbitrage value of having a resource that can respond to electricity price signals optimally when capacity-constrained conditions do not prevail.

Thoughts on Establishing Financial Support for Community Energy Resilience Projects

As of May 2021, more than 400 communities have earned a SolSmart designation, and many of these places are thinking about taking their solar commitment to the next level. This brief offers the integration of solar and resiliency planning as an effective way to expand financing options for both solar and resiliency projects. We recommend starting with a community-engaged resiliency planning process that establishes resiliency goals with wide community support. Once community goals are established, identifying energy resiliency project options becomes possible. Tools like NREL REOpt can be helpful in establishing the energy needs for a project, as well as in assessing resource options for meeting those critical needs during resiliency events. A well-defined, well-supported project then faces the challenge of amassing the financing necessary to build the project.

This brief reviewed three communities to survey public policies, utility tariffs, and utility programs that can support a cost-effective project that can garner the necessary financing. Some of these policies and programs that contribute to a net positive value proposition include:

- State-funded programs supporting solar, storage, microgrid, sustainability, and resiliency projects;
- Federal funding supporting resiliency projects for local governments and defense facilities, including those that support community and military base collaboration;
- Department of Energy-funded programs like SolSmart that offer technical assistance to communities;
- Utility tariffs and programs that support solar, storage, demand side measures, and microgrid projects;
- Utility rate designs that reflect time of use price differences;
- Capacity contracts with utilities or regional transmission operators that support microgrid
and resiliency projects that obviate the need for expensive transmission or distribution investments;

- Quantification of air quality and public health co-benefits that show additional sources of public benefit from sustainable, resilient projects; and

- Public/private collaborative projects that produce benefits for private investors and the community as well.

The good news for communities in 2021 is that increased state and federal funding for resiliency projects is likely. SolSmart communities that begin participating in community resiliency goal-setting this year will be well-positioned to compete for emerging funds that can support accelerated progress toward local resiliency and solar goals.

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