



# Solar Solutions Guide

Addressing building owner concerns

Prepared by  
***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 renewable energy and a modern grid through technical, policy, and project development expertise.

The Clean Coalition drives policy innovation to remove barriers to procurement and interconnection of distributed energy resources (DER)—such as local renewables, advanced inverters, demand response, and energy storage—and we establish market mechanisms that realize the full potential of integrating these solutions. The Clean Coalition also collaborates with utilities and municipalities to create near-term deployment opportunities that prove the technical and financial viability of local renewables and other DER.

Visit us online at [www.clean-coalition.org](http://www.clean-coalition.org).

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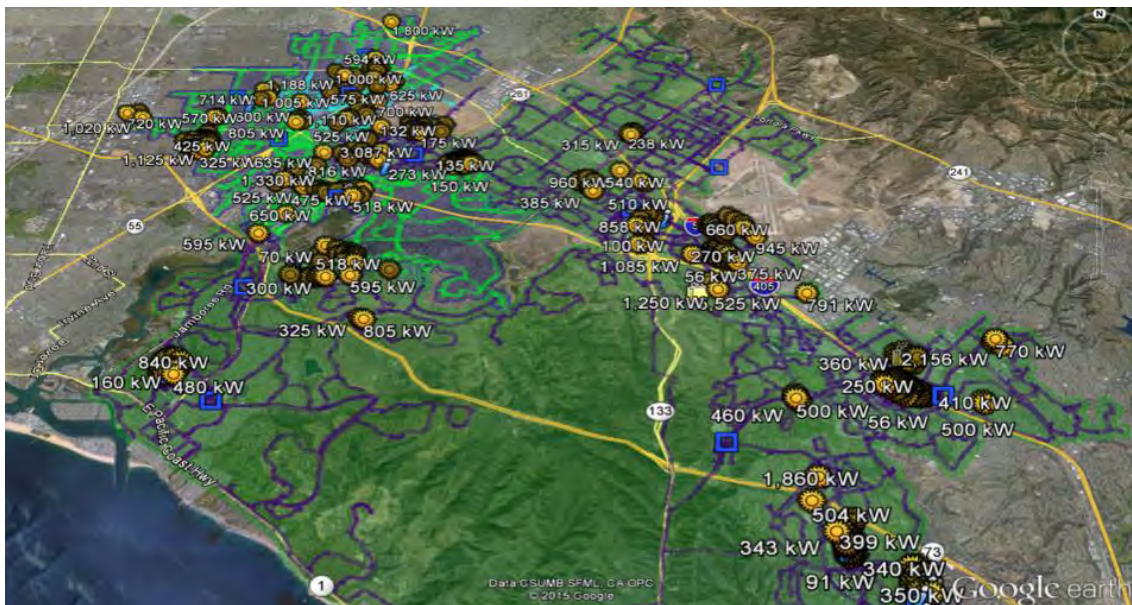
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## Executive summary

In November 2013, Southern California Edison (SCE) began its Preferred Resources Pilot (PRP). The PRP is an effort to study and demonstrate how preferred resources—including local solar PV, energy efficiency, demand response, and energy storage—can offset the forecasted increase in electricity demand in the southern portion of SCE's territory.

SCE has already acquired some preferred resources, but needs an expanded portfolio to meet the forecasted growth through 2022. In particular, SCE is looking for increased generation from local solar within the PRP grid area.

In April 2015, the Clean Coalition released a [Solar Siting Survey](#) that highlights the significant technical level of local solar PV energy that may be generated within the PRP grid area. The Solar Siting Survey identified over 160 megawatts (MW) of technical potential for large commercial solar installations within the PRP grid area.



*A snapshot from the Clean Coalition's PRP Solar Siting Survey, which details large rooftops, parking lots, and parking structures that have the potential to host at least 500 kilowatts (kW) of solar PV.*

Despite this vast potential, the adoption of solar by the commercial and industrial sector in the PRP region has been low. Building owners in Orange County, home to the PRP area, have expressed concerns regarding solar installations on their facilities. SCE contracted with the Clean Coalition to work with solar developers to identify viable solutions to the building owners concerns.

This Solar Solutions Guide seeks to address the six major concern areas expressed by building owners in Orange County, California regarding solar adoption. These include:

- 1) Economic considerations** - Building owners are concerned about the cost of the system, as well as ongoing operations and maintenance (O&M) costs.
- 2) Outside core business area** - Building owners see solar as a distraction to their core business area.
- 3) Facility concerns** - Building owners see solar installations as a facility liability.
- 4) Vendor and technology risk** - Building owners have expressed concern regarding the reliability of solar developers—with respect to workmanship, project management, and length of time in business.
- 5) Permitting and approvals** - Building owners do not want to navigate the permitting and approval process for a solar installation. Additionally, some building owners need approval from the landowner to make significant modifications.
- 6) Other** - Other building owner concerns, such as safety issues and contract flexibility, are inherent in all solar development projects.

While this guide has been designed to address the concerns of building owners in Southern California, many of the issues addressed are highly applicable to other utility service territories.

# 1. Economic considerations

Building owners are unwilling to pursue business ventures that don't make economic sense. With respect to solar, building owners are concerned about the cost of the system. This includes the initial cost, as well as ongoing operations and maintenance (O&M) costs. O&M costs issues are greatly exacerbated if the developer goes out of business.

Besides system costs, building owners are concerned about the return they will see on a solar project. Even if the internal rate of return (IRR) is reasonable or the income is 100% accretive through a site lease, the profit from a solar installation is low relative to normal business operations.

Lastly, opening a property to a solar installation brings inherent risk. Penetrations create concerns about rooftop integrity. Solar installations bring new insurance risks. And there is economic risk from changing a building's aesthetics by adding solar, including a potential impact on building resale value.

In this section, solar developers propose a variety of solutions including:

- The developer acts as the sole liable party in all instances, including insurance matters, repair and replacement of roof, permitting, and associated fees.
- The developer offers a simple, pre-defined, and attractive rate of return for the building owner.
- The developer creates a deal structure to meet the building owner's preferences regarding length of the lease, construction timelines, insurance coverage, and legal liability.
- The developer offers a site lease that includes the deferral of capital expenditures, such as a new rooftop, which increases the value of a building.



## **Mirasol Development**

### **Proposed Solutions**

#### **OUR BUSINESS MODEL: NO COST, LEAST RISK, AND SIMPLEST**

Enter a secondary use property lease with Mirasol Development to maximize your risk-adjusted rate of return.

Mirasol Development's business model centers on the secondary use property lease structure. We want to lease unused property from you and make you a solar site host. This model is absolutely simplistic for both parties, with minimal risk. This allows you to benefit financially from solar, assume zero costs, incur no liability and have no project responsibility.

#### **A SIMPLE FIT**

As a solar site host, you will assume zero costs, zero liability, and zero responsibility over the project. You are not responsible for any fees, taxes, additional insurance, permitting, or any other approvals needed. Mirasol Development will take care of everything as the turnkey project developer and assume ALL responsibility and ALL liability for the solar project.

#### **AVOID CAPEX AND FINANCING RISKS**

Solar systems require upfront costs and financing. By signing on as a solar site host with Mirasol Development, you avoid taking on these risks while still retaining the indirect benefits of solar. You will start earning money the moment you enter an option to lease to us.

#### **EARN NON-MONETARY BENEFITS**

Additionally, your business can earn tremendous non-monetary benefits at no cost. By being a solar site host your business earns free green marketing and you will support local jobs. If we can develop a solar carport system at your property, it would shade vehicles and provide customers and employees with weather protection, and we could offer the addition of high efficiency LED lighting to illuminate the parking area at no cost. This would enhance the lighting capability and safety of your parking area, while also lowering your parking area lighting costs.

## UNLOCK VALUE

We don't change how you purchase energy or the rate you pay, but we can help your business maximize its property value and generate new cash flows by being a solar site host. We can unlock value from portions of your property that are otherwise non-performing.

### **Benefits and Costs to the Building Owner from the Proposed Solutions**

#### **BENEFITS**

- Simplistic deal structure.
- No capital expenditures.
- No fees.
- No liability.
- No responsibility for any aspect of development, construction, or O&M operation and maintenance of the project.
- Immediate cash flows once lease option agreement is signed.
- Free green marketing.
- Extracting value from otherwise non-performing property.
- Shade vehicles and create weather protection under carports.
- Free high efficiency LED lighting installation with carports.

#### **COSTS**

- None, except minor legal fees if you choose to use outside counsel to review our standard lease agreement.

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## NRG

### **Proposed Solutions**

NRG understands that building owners are unwilling to pursue business ventures that don't make economic sense. NRG does not want to engage customers regarding solar development unless it makes economic sense. Our team performs extensive due diligence before presenting the customer any solar project development. In that due diligence we conduct an economic review showing net present value (NPV), internal rate of return (IRR), and payback period of the proposed system. This gives the building owner choice when it comes to where they are getting their energy from, and at what cost.

When NRG presents a fully vetted solar project to the customer, all costs associated with installation, equipment, operations and maintenance (O&M), and tax incentive monetization is included in the Power Purchase Agreement (PPA) price. The building owner is only paying for the energy produced. Furthermore, NRG understands that a roof's integrity is essential to any building owner. Thus, during our due diligence process, we make sure the proposed system does not void any roof insurance or warranty. In addition, the PPA price includes any costs incurred to take the system down during a period when the building owner needs to re-roof.

### **Benefits and Costs to the Building Owner from the Proposed Solutions**

With regards to the O&M costs and their change if the developer goes out of business: First of all, NRG—unlike many other solar developers—is a Fortune 200 company. We are a forward thinking energy company, with the balance sheet to back up our reputation. NRG is not going anywhere soon. But to explain this customer hesitation when it comes to financial viability of the solar developer, think of your solar system as a car lease. If you lease a car from a dealership, that lease is pooled and financed by banks. Banks invest in those leases because they are guaranteed a set return from the customer's monthly lease payments. If the dealership goes out of business, that bank is going to come in and make sure the car is still running properly and has the O&M necessary because their investment depends on that monthly lease payment from the customer. Solar installations can be thought of in the same manner. The systems that NRG installs are financed through a consortium of banks. If NRG were to go out of business, the O&M responsibility would fall to another solar developer chosen from the bank that financed the solar system. The costs incurred on the building owner would not change, based on the terms in the PPA.

Our experience shows that sites with our solar projects add value to the buildings. This is because the solar system makes economic sense to the customer, thus adding value with lower energy prices to the building. Normally, our installations are on the top of flat, commercial and industrial (C&I) rooftops—not visible to anyone on the ground floor. Our carport installations add shade to parking lots, giving car owners relief from hot, exposed parking lots.

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## RA Power & Light

RA Power & Light is a renewable professional services firm serving commercial, industrial, and multi-meter clients with a diverse mix of conservation, distributed generation, enterprise, and renewable power solutions. RA Power & Light helps commercial enterprises achieve best practices in energy management, verification, and distributed generation, aimed at energy value chain optimization. We operate in seven western states with a focus on Washington, California, Nevada, and Arizona. We deliver turnkey engineering, procurement, and construction services and predictable outcomes on megawatt-class commercial solar projects. RA Power & Light specializes in commercial and industrial, rooftop, canopy, and utility scale solar deployments only. Our Design Build EPC teams have over 250 megawatts of commercial solar experience.

### Proposed Solutions

RA Power & Light includes a 10-year design/installation warranty on every system we build. While this warranty has a lot of value and is nine years longer than what is required in California, it is inherently reactive and does not cover regular proactive maintenance. If the PV system is properly designed and built using the best components, frankly speaking, there is not a lot of risk in offering this warranty. At the same time, if it were our building, we'd be looking for more. This is why through our partnership with a leading southern California-based asset management firm, we offer Operations & Maintenance asset management programs providing regular service and system cleanings purchased in ten-year increments. Our O&M partner is a billion dollar national service provider actively managing over 2 GW of commercial systems across the United States and Canada.

Under RA Power & Light's insurance-backed asset management plan, they will be onsite as needed in the event of any failure (plus a minimum of twice each year) to recommission PV systems, prove they meet their own specification and most important: guarantee annual production over the life of the service contract. Under RA Power & Light's O&M program, if the system ever misses the annual production target by greater than three days in a calendar year, the system owner receives a check for the difference, for 10 full years. Should our partner at any time become unable to fulfill its obligations under the term of the O&M contract, the Lloyds policy will retain RA Power & Light as the qualified EPC able to fulfill their obligations. In year 11, for \$0.10- \$0.20 per DC Watt depending upon the system configuration, the host may renew the O&M contract and annual production guaranty for an additional 10 years.

## **Benefits and Costs to the Building Owner from the Proposed Solutions**

Two service providers supporting the same system eliminates ambiguity about system management and assures revenue streams from these systems are consistently maintained over their usable lifespan of more than 20 years. It also assures the return on investment (ROI) of the system is deemed to be investment-grade and therefore, bankable. This is a key differentiation RA Power & Light brings to every commercial solar project and an important part of how we consistently deliver greater value over the life of renewable assets.

In our experience, buildings with properly designed and maintained commercial PV systems resell much faster than comparable buildings without solar. In fact, large commercial real estate firms use RA Power & Light systems to sell buildings.

Below is a recent press release from a completed RA Power & Light project:

[www.businesswire.com/news/home/20151020005470/en/SunLink-RA-Power-Light-Complete-Rooftop-Commercial](http://www.businesswire.com/news/home/20151020005470/en/SunLink-RA-Power-Light-Complete-Rooftop-Commercial).

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## Solar Provider Group

### Proposed Solutions

A commercial solar project can be installed as roof-mounts, ground-mounts, carports, or a combination of the three to maximize available space. The purchaser can choose to maximize their return by owning the solar PV system outright or switch to a lower energy rate by leasing the system from a third-party.

### Benefits and Costs to the Building Owner from the Proposed Solutions

#### OWNERSHIP OF SYSTEM

- Cost ranges from \$2-2.8/watt, which roughly translates to \$15-25/sq. ft.
- 10-20% IRR.
- Tax breaks.
- 30% Federal Investment Tax Credit.
- 5-Year Modified Accelerated Cost Recovery Depreciation.
- 10-Year CA State Straight-line Depreciation.
- Local utility incentives.
- Performance-based Incentives.
- Expected performance-based buydown.
- Lower and predictable energy rate for 20-25 years.
- Turn-key solar system installation with online monitoring software.

#### THIRD-PARTY OWNERSHIP OF SYSTEM

- \$0 upfront capital investment.
- 10-40% lower energy rate for 20-25 years.
- Local utility incentives.
- Performance-based incentives.
- Expected performance-based buydown.
- Possible off balance sheet accounting treatment.
- Turn-key solar system installation with online monitoring software.
- Free 20-year Operations and Maintenance (O&M) package.

#### INCREASED PROPERTY VALUE

- The addition of a solar PV system can increase the value of your property because of decreased utility costs compared to comparable properties without solar (see table below).

<b>Case Study – Cap Rate 6%</b>		
<b>Year</b>	<b>Estimated Annual Utility</b>	<b>Property Value Increase</b>
1	\$12,000	\$200,000
2	\$25,047	\$417,450
3	\$39,200	\$653,341
4	\$54,523	\$908,713
5	\$71,080	\$1,184,661
6	\$88,940	\$1,482,330
7	\$108,175	\$1,802,924
8	\$128,862	\$2,147,708
9	\$151,080	\$2,518,008
10	\$174,913	\$2,915,214
11	\$200,447	\$3,340,787
12	\$227,776	\$3,796,259
13	\$256,994	\$4,283,236
14	\$288,204	\$4,803,402
15	\$321,512	\$5,358,527
16	\$357,028	\$5,950,462
17	\$394,869	\$6,581,151
18	\$435,158	\$7,252,633
19	\$478,023	\$7,967,044
20	\$523,597	\$8,726,624

#### **LEED CERTIFICATION**

- By obtaining LEED certification, properties are able to increase occupancy/rental rates as well as qualify for more attractive financing.
- Solar systems qualify for LEED points which contribute towards LEED Certification.

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## Sunplicity

### Proposed Solutions

Sunplicity has invented and patented a methodology that generates 30% more electricity than conventional rooftop systems used by the industry. Sunplicity's system is best applied to large commercial and industrial rooftops.

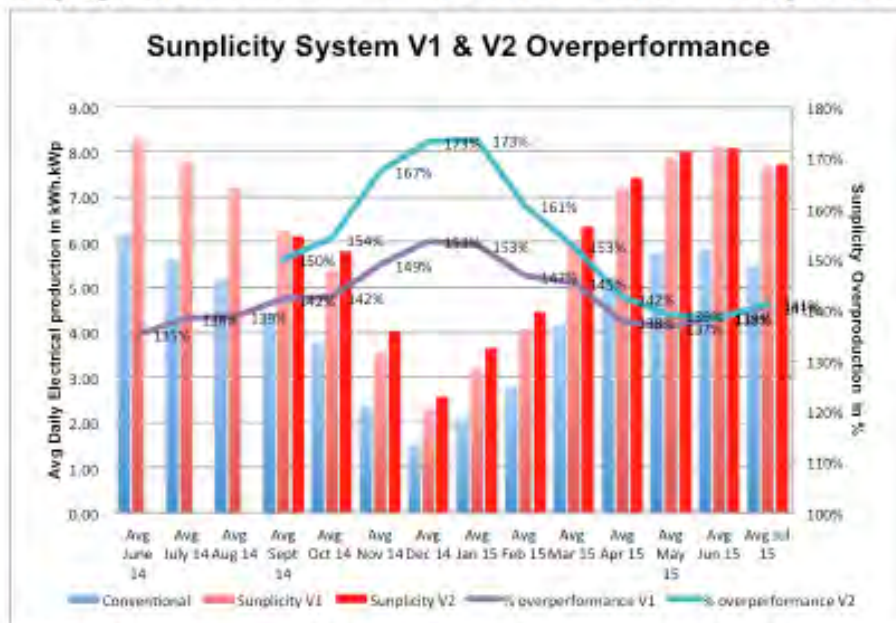
The extra energy produced directly increases production, and therefore, Sunplicity Systems have higher net present values (NPVs) and internal rate of returns (IRRs) than conventional systems.

Sunplicity's System also reduces the HVAC costs within the building, thereby further improving the returns of solar projects.

### Sunplicity Overperformance:



### Sunplicity generates 30-70% More Electricity / Revenue



Test Site #1, Avg daily values 1 June 2014 – 31 July 2015, Sacramento, CA

## **Benefits and Costs to the Building Owner from the Proposed Solutions**

1. *Higher IRRs and Higher NPVs:* Due to the extra electricity generated by the Sunplicity System compared to conventional systems, the IRR and NPV of Sunplicity solar projects is much higher than for conventional systems. The LCOE (levelized cost of electricity) is also much lower.
2. *Greater electricity production:* Because a Sunplicity rooftop system generates more per square foot than conventional solar systems, there is more associated revenue through a Sunplicity System.
3. *Free new roof provided with the solar array:* In most cases, Sunplicity will provide a new roof for free before the solar array is installed. We do this so the solar array does not have to be removed while the roof is being repaired or replaced, and so customers can enjoy the benefit of uninterrupted clean energy over the lifetime of the solar array. Our roofs are Certified Cool Roofs, and will help you save on you HVAC bill as well.

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## West Hills Construction

### Proposed Solutions

**Building owner concern:** The Developer/General Contractor has not been around a long time, and I have concerns regarding their viability and credit worthiness. This issue carries to all aspects of the project, including any long-term contract, or long-term operations & maintenance (O&M) contracts that I might sign.

**Solution:** West Hills Construction, Inc. (WHC) is a corporation specialized in meeting the needs of clients desiring to build high-end residential, commercial, and industrial projects, ranging from 2,500 to 500,000 square feet through full service custom design/build general construction, and operations & maintenance that covers five different divisions within the company. Projects include large custom homes, restaurants, warehouses, industrial centers, mid-size shopping centers, parking structures, and medical/professional office buildings from one to five stories. This is a fourth generation lineage trade for the family. The Wood family has been a generational general contracting family for over 130 linear years. Many of our clients have been with us for almost thirty years, and we can give referrals of these long-term clients to prove our quality, and how historical relevance within the General Construction industry. Due to our many divisions, WHC is not reliant upon one type of income to make the business viable—we have five different divisions which all have different goals and markets that are not reliant upon each other; it's one of the reasons WHC has been able to ride through so many economic turbulent times and come out stronger each and every time!

**Building owner concern:** Rooftop solar installations bring inherent risk to the property through poor installation and quality standards on how it is installed, along with the potential of lower resale value due to aesthetics by adding solar.

**Solution:** Due to our extensive general construction background, there is no one better suited to construct solar rooftop installations. We generally build the buildings these generating facilities are constructed on, and there is no one in the industry that is more knowledgeable in that area than WHC. Solar installations are one of the easiest construction projects a true design/build general contractor can do when they have the level of experience WHC employs on a jobsite.

## **Benefits and Costs to the Building Owner from the Proposed Solutions**

When a building owner allows a solar installation to be installed on their facility either through an ownership program, or a lease program, they will always increase the value of their building and investment. Each pathway can create new rental income that can be attributed to the facility and will be calculated in any new appraisal of the facility—which is primarily based upon how much revenue the building generates, among a few other factors. WHC has never encountered a solar project where it dropped the value of the facility for any reason.

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## 2. Outside core business area

Building owners have a clear area of expertise. Many see solar as a complicated distraction to their core business area.

Other investments, like traditional real estate investments, are relatively common and easier to consider—even if they are not part of the core business. Building owners want to see solar investment opportunities that are also easy to consider.

Building owners should seek out developers that can structure a solar deal so it would be within their area of expertise. This means that a building owner could lease a parking lot or rooftop available square footage for a negotiated length of time.

It is worth noting that solar installations using a site lease model are quite similar to the deal structure for cell towers and antennas to service targeted population centers. Building owners' detailed knowledge of this type of leasing arrangement can result in mutually beneficial terms that will result in simple, profitable solar installations.

In this section, solar developers propose a variety of solutions including:

- A simple, proven solution to turn underutilized square footage—such as rooftop space and parking lots—into a revenue-generating asset.
- The developer provides testimonials, references, and a project portfolio highlighting their ability to structure successful solar deals for other building owners.
- A contract structured like a site lease, which the telecommunications industry has used for multiple decades to install cell towers and antennas.



## **Mirasol Development**

### **Proposed Solutions**

#### **LEAVE IT TO US**

Mirasol Development works in lock-step with its partners. Your core business should always remain so. Our business model ensures that you don't have to allocate any resources into the project from development to operation. We do everything, allowing you to remain focused on what you do best: running your business.

#### **OUR BUSINESS MODEL**

Enter a secondary use property lease with Mirasol Development to maximize your risk-adjusted rate of return while remaining focused on your core business.

Mirasol Development's business model centers on the secondary use property lease structure. We want to lease unused property from you and make you a solar site host. This model is absolutely simplistic for both parties, with minimal risk. This allows you to benefit financially from solar, assume zero costs, incur no liability and have no project responsibility.

#### **HIGHER RISK-ADJUSTED RETURN**

Even though your normal business operations may generate a higher rate of return per utilized square foot, your unused property has the potential to generate a much higher return than it currently does. The additional cash flow from lease payments enhances your property's value and goes straight to your bottom line as net profit.

#### **A FAMILIAR MODEL**

The telecommunications industry has used this same leasing model for the past two decades, installing cell towers and antennas to service targeted population centers. This is a globally accepted business practice that has proven profitable for property owners and successful for the telecommunication companies. What we are trying to do at Mirasol Development is no different than the telecommunications industry; at the core we are trying to provide a necessary service (electricity) to the masses within areas of high consumption. This lease structure is quite familiar to many property owners whose businesses are predicated on leasing their property. Your knowledge of leasing will help move the deal negotiations along smoothly, allowing mutually



beneficial terms that will result in clean, renewable solar energy for your business' community.

## **REMAIN FOCUSED ON YOUR CORE BUSINESS**

Mirasol Development will make sure your business operates without disruption during construction. We will diligently work with your business to ensure that your needs come first. We want you to focus on your core business and not have to worry about any outside factors. We work around your schedule.

## **Benefits and Costs to the Building Owner from the Proposed Solutions**

### **BENEFITS**

- Simple, tried, and true deal structure.
- Extracting value from otherwise non-performing property.
- No responsibility for any aspect of development, construction, or operation and management of the project.
- Least risk deal structure.
- Minimal business disruptions allowing you to remain focused on your core business.

### **COSTS**

- Minimal legal fees if outside council is needed to review the lease agreement.

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## NRG

### **Proposed Solutions**

Many building owners lease space in their buildings for office/commercial use. They agree upon a set amount per square foot and lease the space for a certain time period. Solar installations should be thought of in the same manner.

### **Benefits and Costs to the Building Owner from the Proposed Solutions**

NRG would lease the rooftop space from the building owner, own and operate the system, and the building owner would see a payment in the form of lower energy prices or a site lease payment. Real estate investments are maximized by taking advantage of the entire asset, and a solar installation is a way to monetize unused square footage.

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## RA Power & Light

### Proposed Solutions

Renewable energy infrastructure is one of the best investments you can make in your commercial building. However, it should not be positioned to rival profit margins associated with the building owner's core business. RA Power & Light commercial PV systems deliver on average 14% IRR and 17% EBITDA in Southern California Edison jurisdiction—with zero out-of-pocket costs for the solar system installation. In most cases, these results, on their own, present a compelling business case to deploy solar. At the same time, returns on a new oven leased as capital equipment by a commercial bakery or a CAT scan system leased by a hospital should not be considered fair comparisons.

### Benefits and Costs to the Building Owner from the Proposed Solutions

The value proposition for commercial solar is straightforward. The system can either delivers power at the time of day when it's most costly to buy power or provide revenue through a site lease. In either case, you are taking underutilized commercial real estate (your roof) and turning it into a multi-year revenue-generating asset. As long as it can be financed with nothing out of pocket as a reduced operating expense, or additional revenue stream, instead of a capital expense, solar is a home run for business. To put it in perspective: how many cookies must be formulated, baked, packaged, shipped, sold, and paid for to deliver \$100,000 in net profit each year to the bakery—for each of the next 20 years? That's a lot of cookies! Additionally, simply shading your building with PV modules will reduce cooling loads 10-15% during the hottest months as shaded roof surfaces benefit from up to twice their usable life compared to roof areas in direct sunlight.

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## **West Hills Construction**

### **Proposed Solutions**

Building owners have a clear area of expertise: not the owning and operating a solar facility. Many see solar as a distraction to their normal business operations.

This is a true statement, and we have had many building owners decline to go forward with a project because they feel it is just too far outside of their area of expertise, and they are not comfortable with the investment.

The great news is that we are an investor who does like these types of opportunities, and we can still structure the deal so it would be within your area of expertise. This means you lease your parking lot or rooftop available square footage to us for a negotiated length of time.

### **Benefits and Costs to the Building Owner from the Proposed Solutions**

You would be able to still be a part of the project and the solution that the utility needs, not take a big risk that is outside of your comfort zone, and still bring in additional annual revenue from a new tenant.

After an initial meeting, we can quickly figure out what types of proposals you would like to see after we have completed our forensic evaluation of the site. Nothing about the process would be different—we can present you with one option or two options depending on your preference of what type of business opportunity you are wanting to evaluate.

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### 3. Facility concerns

Maintaining a quality facility is essential for all building owners. Solar installations raise a suite of facility concerns.

Perhaps the largest concerns arise from rooftop solar installations—as opposed to parking lot installations. Added weight to the rooftop can cause structural engineering issues. Investing in a rooftop system is not worth the hassle if the rooftop is old and in need of replacement in the near future.

Building orientation and shading can prohibit the development of a profitable installation. Limited rooftop and/or parking area availability can also affect profitability. Building owners are not experts in the feasibility of solar installations and are looking for developers to clearly articulate answers to these concerns.

Additionally, any construction to a building can result in tenant disruption, which is undesirable. Building owners are going to avoid unnecessary tenant disruption, unless absolutely necessary and currently solar is not. Therefore, solar that can be installed with no, or minimal, disruption to tenants is desirable.

In this section, solar developers propose a variety of solutions including:

- The developer holds adequate liability and construction risk insurance coverage over the entirety of the solar project.
- The developer conducts and shares a feasibility analysis—defining project scope, construction timeline, and expected ROI—before asking the building owner to enter into a contract.
- The developer utilizes a project design and construction approach that maintains the validity of existing building warranties, such as a roof warranty.



## **Kana Engineering Group**

### **Proposed Solutions**

One concern we run into frequently is when a building owner doesn't want to do solar project because the building roof needs repair or a potential total replacement. Kana will introduce one or two vetted roofing companies that use environmentally friendly roofing materials, then we will explain how we can bring solar-plus-roof project to HERO (Home Energy Renovation Opportunity, a leading energy efficiency financing program for residential and commercial properties in the US) or commercial PACE (Property Assessed Clean Energy, widely available in CA financing for renewable energy installations) contracts to provide confirmation that roof can be included in solar installation as it will help facilitate the solar/renewable energy project. The same favorable financing, including potentially no money down, can be applied to roof improvements/replacement when folded into a solar/renewable energy project. Kana Engineering will manage the process for building owners and bring in a vetted roofing company along with introductions to financing partners that will incorporate roof repairs as part of the larger solar/renewable project. Kana can handle all aspects of your project efficiently and cost effectively.

### **Benefits and Costs to the Building Owner from the Proposed Solutions**

Benefits of repairing or replacing roof of building after installation of rooftop solar:

- Although the cost of the project will be increased, roof repairs or replacement can be financed through subsidized solar programs like HERO or PACE.
- Installing new roof and solar at the same time increases value of the building.
- Roof and solar should be synced up for 20-25 years warranties.
- Roof provides savings if reflective/environmentally friendly materials are used.
- Total energy use offset is higher with reflective/environmentally friendly roof.
- New roof plus solar will help counterbalance annual increases in utility bill.

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## **Mirasol Development**

### **Proposed Solutions**

#### **FACILITATING MUTUALLY BENEFICIAL PARTNERSHIPS**

We are a turnkey solar developer exclusively focused on developing projects on commercial and industrial buildings that are aesthetically pleasing and structurally non-invasive. With our extensive industry expertise and no-risk-to-you business model, we navigate the development and construction process with complete regard for your business' needs and wishes. We will never move forward on something that jeopardizes your business or property.

#### **IMPROVE YOUR PROPERTY**

Our installations are designed by highly experienced engineers to be minimally invasive and aesthetically pleasing. If, for any reason, upgrades to roofing need to be made, we can work out a mutually beneficial solution depending on how significant the upgrade may be and what your business objectives are. Similarly, if you have been planning for updates in the parking area we can work out a mutually beneficial solution before constructing the carports.

#### **SCHEDULING FLEXIBILITY**

Mirasol Development will make sure your business operates with minimal disruption during construction. We will diligently work with your business to ensure that your needs come first. We want you to focus on your core business and not have to worry about any outside factors. We work around your schedule.

#### **MINIMAL INTERRUPTIONS**

Once construction is completed, generally within three months, your business will return to normal operations. There will be no interruption from the operation of the solar system on your daily business. When regular system checks are required (quarterly or less often), you will be notified well in advance and we will coordinate the service with your schedule.

## NO LIABILITY

Mirasol Development will take care of everything as the turnkey project developer and assume ALL responsibility and ALL liability for the solar project. Mirasol Development is in the practice of protecting itself from any and all project risks, therefore we have liability and construction risk coverage above and beyond the typical industry standard. If anything adverse should happen to your property as the result of our solar project, rest assured that our liability insurance will be there to protect you from damages.

## **Benefits and Costs to the Building Owner from the Proposed Solutions**

### BENEFITS

- No liability.
- No responsibility for any aspect of development, construction or operations and maintenance of the project.
- Least risk deal structure.
- Minimal business disruptions.

### COSTS

- Minimal legal fees if outside council is needed to review the lease agreement.

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## RA Power & Light

### Proposed Solutions

#### CONSTRUCTION PROCESS & TIMELINE

RA Power & Light commercial rooftop solar projects are on average a 12-week process. Material procurement and deliveries are sequenced to eliminate choke points in the build schedule and eliminate disruption to facility business operations. We install scaffolding with stairs to the roof (usually near the rear loading dock) to enable secure, safe roof access for construction personnel. Temporary restroom facilities are then brought onsite to eliminate the need for construction crews to enter the building itself. To drive the lowest cost and assure supply of the absolute highest quality equipment the industry has to offer, RA Power & Light most often pays cash in advance for material, which stems the tide of preliminary lien notices to the system owner.

#### POINT OF INTERCONNECTION TO SCE

RA Power & Light commercial PV designs eliminate a single point of failure by incorporating commercial string inverters on the roof from which we pull AC power to the hi-load Southern California Edison (SCE) house meter for interconnection. In RA Power & Light designs, PV sub-arrays are grouped in clusters of 24 kilowatts (kW) or more, connected to and supported by individual string inverters. The result is multiple systems operating in harmony, tracked and managed in a single view by the PV monitoring system. We include a weather station with every system we build, feeding meteorological data into the cloud-based monitoring system.

#### OVERVIEW OF TECHNOLOGY, INVERTERS, CONTROLS, AND SAFETY

In the first four weeks, as the single line design drawings and roof layout are completed, we bring a structural engineer on site to measure roof trusses and mathematically prove the building can safely support the on average 3 pounds per square foot added to the roof in high winds and seismic events. To complete the permit package, structural engineering analysis and drawings are added to the single-line design drawings and system specifications.

RA Power & Light designs combine seismic, wind load, snow load with structural requirements specific to your building, including well-established NEC/CA fire clearances that maximize energy production and assure the safety of firefighters and building occupants. We leave a minimum six feet open around the roof perimeter and four feet clearance providing access around skylights, HVAC units, and vents. We then

perform shade analysis to track the sweep of shadows of existing rooftop equipment over 12 months and layout PV sub arrays around it. Typically, 30% of the roof surface area is dedicated to fire clearances and setbacks. The system has a well-labeled manual disconnect located at each string inverter on the roof. There is also a master system disconnect located at the switchgear. RA Power & Light strictly adheres to the North American Board of Certified Energy Practitioners safety protocols, including fall protection, hard hats, and safety vests. We have never had an accident or workers compensation claim on any project and continue to train and enforce safety procedures with every employee, on every project.

## **ROOF WORK**

In our view, a high-quality, problem free roof is essential to build on. We rely on a well-established approach that does not void the existing roof warranty. In southern California, the majority of commercial roofs are comprised of rolled asphalt. Our roofing partner has a 20-year acrylic over rolled asphalt solution that has proven effective in bringing rolled asphalt roof surfaces back to 100%. The system includes two sheets of polyester and six gallons of bright white acrylic per square. With 30 million square feet of commercial roof experience, our team delivers outstanding results on commercial roofing projects. The first step is to do a core sample to verify how many layers of asphalt are in place. If there are less than three layers, the RA Power & Light 20-year acrylic roof can typically be implemented without a tear-off and complete roof replacement. Once its proven we do not need to tear off the old roofing material, a complete roof solution can be done for no more than \$3.50 per square foot of roof surface, including new drains and patching—within reason. If a complete roof tear-off is required, costs rise to \$5 per square foot for the 20-year solution.

## **ROOF PENETRATIONS? NO!**

At RA Power & Light, we only design, build, and sell what we would use on our own building. That means the highest quality ballasted racking solution our industry has to offer: SunLink's Precision Modular Roof Mounted Racking System. This system is wind load tested to withstand a 90 mph burst of wind sustained for three seconds, is Class A fire rated and requires zero roof penetrations to deploy.

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## Solar Provider Group

### Proposed Solutions

#### ROOF INTEGRITY

- Rooftop systems require minimal penetrations on the roof, leaving your roof's warranty intact. Small repairs to your roof are complimentary and all improvements will be documented.
- Each rooftop system is designed to ensure that roof drainage routes and existing rooftop equipment are not impacted, and access is provided to all rooftop systems to allow for proper maintenance.
- Rooftop systems will not increase the risk of fire or impede firefighters' ability to extinguish a fire as each system is designed in accordance with recognized fire codes that identify best practices for rooftop PV systems and the California Department of Forestry and Fire Protection's leading guidelines on PV system installations.
- Before a rooftop system is installed, a roof assessment will be conducted to determine if the roof will need to be replaced during the life of the rooftop system. If the roof will need to be replaced, typically building owners are encouraged to replace it prior to installing the system.
- In case of an emergency, the rooftop system can be removed and reinstalled easily within a week or two to minimize lost solar revenues during system downtime. Cost of a one-time system removal and installation will be on the system installer.
- Panels add a protective layer against weather, light, and heat, which increases the roof's lifespan.

#### BUSINESS OPERATIONS

- Construction process will be minimally invasive to the day-to-day operations of your business. Each project takes approximately 4-8 weeks to construct depending on the size of the system.
- In case of any unforeseen interruption, the business will be covered by full liability and business interruption insurance. To date, we have had zero property-related insurance incidents (>100 systems completed, and counting).
- Full maintenance service available for the system.
- Property taxes will not increase.

## SOLAR SHADING

- A topographic survey will be created to make sure that the structural requirements are balanced with such things as module stringing, ADA path-of-travel constraints, underground utilities, and other project-specific requirements.
- In California, the solar modules will have a 5-15 degree tilt facing the south for optimal solar production.

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## Sunplicity

### Proposed Solutions

Although tenants generally want the benefits of costs savings that go with solar energy, building owners often hesitate to lease their roofs because they are concerned about the liability they are taking on by renting out the rooftop in case the roof needs to be repaired.

Indeed, if the roof needs to be fixed, the building owner is responsible for the costs of removing the solar array, fixing the roof, reinstalling the solar array, and paying compensation to the solar developer who was not able to supply the tenant with solar electricity. No building owner wants this liability.

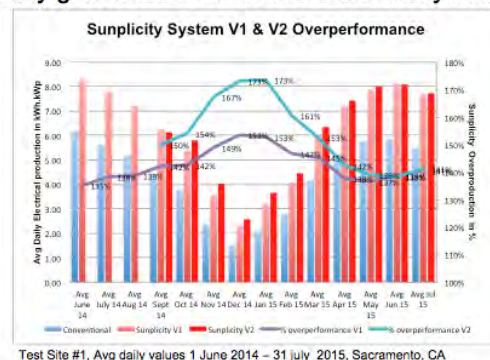
In general, building owners will delay the installation of a solar array on a commercial building until such time as the roof is renovated/replaced. This can be many years out if the roof still has considerable life left in it.

Sunplicity solves this concern by providing building owners with a new roof for free before the solar array is installed. By doing this, the life of the roof matches the life of the solar panels: 20 to 25 years. We also avoid the cost of removing and reinstalling the modules, as well as the cost of the roof. Building owner can allocate their CAPEX budget on other items.

Sunplicity is able to pay for this free roof because we have invented and patented a methodology that generates 30% more electricity than conventional rooftop systems used by the industry.

### Sunplicity Overperformance:

Sunplicity generates 30-70% More Electricity / Revenue



## Benefits and Costs to the Building Owner from the Proposed Solutions

1. *Free new roof provided with the solar array:* In most cases, Sunplicity will provide a new roof for free before the solar array is installed. The free roof is a huge benefit to building owners who can use their CAPEX budget on other investments. We provide a new roof so the solar array does not have to be removed while the roof is being repaired or replaced, and so customers can enjoy the benefit of uninterrupted clean energy over the lifetime of the solar array.
2. *Higher IRRs and Higher NPVs:* Due to the extra electricity generated by the Sunplicity System compared to conventional systems, the IRR and NPV of Sunplicity solar projects is much higher than for conventional systems. The LCOE (levelized cost of electricity) is also much lower.
3. *Greater electricity production:* Because a Sunplicity rooftop system generates more per square foot, the building owners will be able to generate more electricity and associated revenue through a Sunplicity system.
4. *Energy/HVAC savings:* Our roofs are Certified Cool Roofs, and will help you save on you HVAC bill as well.

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## West Hills Construction

### Proposed Solutions

**Building owner concern:** Any solar generating facility owner will recognize that maintaining a quality facility is essential for long-term viability. How does West Hills Construction (WHC) solve this issue?

**Solution:** WHC has many long-term O&M agreements with our clients that have allowed us to build their solar generating facilities of all types. Within those agreements, we include many things that are standard and routine to our development and business practice such as: expanded bumper to bumper warranty of the system, roof and production guaranties, and live 24/7 system review and analyzation for the duration of revenue projections and expected system life. We treat the system as if it was ours, and with liquidated damages that WHC would pay to the owner should the system not produce what is expected within every O&M agreement, you better believe that WHC is going to make sure that system produces and runs smoothly. WHC currently has over 30MW under long-term (20+ years) O&M agreements.

**Building owner concern:** Concerns over existing facility not meeting requirements for installation of a solar generating facility such as: structural issues, an old existing roof, wrong building orientation or shading issues, limited rooftop, and/or parking area availability.

**Solution:** WHC always takes the responsibility of the development costs of the project, and will never ask the building owner for reimbursement even if the site is not a good candidate for solar. A good developer should always spend the money upfront on a forensic feasibility study, versus trying to figure the project out on the basis of lean development and lean engineering practices. However, WHC does spend roughly \$15,000-30,000 during the development process to figure out if a property is suitable for solar. We want to make sure the project is viable and constructible prior to putting any economic options in front of a building owner. We do all in-house structural, mechanical, electrical, and financial engineering to ensure a solar generating facility can be installed on the premises. We will identify all benefits and issues and discuss our findings with all property owners who allow us to do an evaluation on their property. If the site is not suitable for solar after our developmental and evaluation study, we will let the property owner know, thank them for their time, shake hands, smile, and look to another property for development for the program. The only thing we ask, is that a property owner to allow us the access to their facility to conduct our evaluation.

**Building owner concern:** Investing is not worth the hassle if the rooftop is old and in need of replacement in the near future.

**Solution:** WHC will make the determination if the facility needs a new roof or not, then can offer a full rooftop replacement in-lieu a site lease payment; which is normally what many building owners choose to do.

**Building owner concern:** Construction to a building can result in tenant disruption, which is undesirable. Building owners want to avoid unnecessary tenant disruptions during developmental activities and solar construction activities.

**Solution:** WHC does a Construction Disruption Plan with building owner to mitigate any negative issues that the construction would cause to other tenants at the facility. We meet with the building owner, and the other tenants to learn operation times, logistic routes, noise issues, and explain the process to them. We also attached a VP level Superintendent, along with a project manager and a day-to-day, on-site Superintendent to every project to ensure that the Construction Disruption Plan that was designed prior to construction starting will be upheld.

To make sure the tenants are taken care of, they have complete access to the management and supervision staff of the project along with the Project Manager and On-Site Superintendent. WHC checks in weekly to address any concerns the tenants have during construction. Our O&M division will also have an Operations Manager that will have contact with the building owner and the tenants to deal with any concerns that might arise during any planned or unplanned maintenance or operational issues with the generating facility after the construction has been completed.

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## 4. Vendor and technology risk

Building owners have expressed concern regarding the reliability of solar developers—with respect to workmanship, project management, and length of time in business. The onus is on solar developers to prove that they are not like “used car salesmen.” A long track record of successful project development and testimonials/referrals may help to overcome this challenge.

In addition to vendor risk, building owners perceive significant technology risk. Solar technology—in regards to cost, lifespan, and efficiency—is constantly improving. Additionally, opportunities to pair solar with other distributed energy resources (DER) like energy storage and demand response schemes may be more lucrative in coming years. Building owners question whether or not now is the right time to move forward with a solar installation.

In this section, solar developers propose a variety of solutions including:

- The developer offers consultation on current incentives and market opportunities, such as the investment tax credit and Preferred Resources Pilot solicitations, while creating a unique and time-sensitive business opportunity that maximizes revenue for the building owner.
- The developer provides testimonials, references, and a project portfolio highlighting their ability to structure successful solar deals for other building owners.
- The developer assigns an on-site Project Manager during the entire construction process to keep the project on schedule, promptly address building owner questions or concerns, and minimize potential disruption to tenants.



## **Mirasol Development**

### **Proposed Solutions**

#### **GLOBAL EXPERTISE AND SOFT COST EFFICIENCIES**

Mirasol Development, along with its parent organization ImMODO Group, and inclusive of ImMODO Energy Services US, has built over 125 megawatts (MW) of solar projects globally. Our extensive industry experience and ability to leverage our engineering, procurement, and construction (EPC) and O&M operations domestically has allowed us to develop turnkey solar projects with industry best practices and efficiency that most developers cannot. For this reason, we are able to reduce the variable soft costs that make up a large portion of overall project costs. Since module prices and electrical costs have stabilized, we are able to make variable costs reductions in other parts of the development and construction process.

#### **OUR BUSINESS MODEL**

Mirasol Development's business model centers on the secondary use property lease structure. We want to lease unused property from you and make you a solar site host. This model is absolutely simplistic for both parties, with minimal risk. This allows you to benefit financially from solar, assume zero costs, incur no liability and have no project responsibility.

#### **NOW IS THE TIME**

Being a solar site host NOW takes advantage of the favorable policies that Southern California Edison (SCE) has put in place to procure large commercial & industrial (non-residential) solar projects. The Preferred Resources Program will not stay open indefinitely and has a strict participation window. Also, the federal government's Investment Tax Credit (ITC) is set to drop substantially at the end of 2016. Getting ahead of these policy issues can ensure that your property starts earning solar income sooner rather than later, especially since the development process can be lengthy.

#### **DON'T WAIT FOR TECHNOLOGY IMPROVEMENTS**

Waiting for technology costs to come down can be risky when the future policy environment is unknown or subject to change, combined with a lengthy development timeline. Module costs make up the bulk of system technology costs. The balance of system costs, or soft costs, have been the bulk of systems price decline. Mirasol Development has keenly taken advantage of this cost differential through its

integrated business model. We have already removed many overhead costs that other developers cannot.

## **Benefits and Costs to the Building Owner from the Proposed Solutions**

### **BENEFITS**

- Remove future policy risks by expediting the decision process.
- Lock in lease pricing now, which could be subject to change in-step with solar policies.
- Start earning lease payments faster, putting that money to work for your business.

### **COSTS**

- Minimal legal fees if outside council is needed to review the lease agreement.

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## NRG

### **Proposed Solutions**

NRG has owns and operates over 3000 megawatts (MW) of renewable energy projects. We have partnered with companies like Kaiser Permanente and Whole Foods to build multi-site C&I solar projects. Upon request, we can provide an extensive list of referrals/testimonials from top companies that we have partnered with.

We install systems using state of the art technology. These systems will be owned and operated by NRG. The customer only pays for the energy produced by the system. Thus, NRG harbors any technology risk. Additionally, NRG is not just a solar developer, we are an energy solution company. If a customer is interested in other distributed energy resources like energy storage, demand response, energy efficiency, NRG can provide any/all solutions available. Furthermore, we have a solutions team located throughout the country that can provide customers with customized energy options.

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## RA Power & Light

### Proposed Solutions

RA Power & Light CEO Michael Campbell began his career in commercial renewables in Southern California in 1984—heating water for industrial facilities and apartment buildings. He became President of California Sun Conversion Systems and active in the Cal SEIA lobby to extend tax incentives. When the SEIA initiative failed in 1986, he embarked on a 20-year tech career, with multinational roles in Consumer Electronics/Semiconductor Divisions at Toshiba and NEC, later making the transition to enterprise software as a Senior Director at Oracle Corporation until 2003. In 2008, after generating \$5 billion in revenue for multinational corporations, he returned to a leadership role in the commercial solar industry based in southern California, where he began.

Today, armed with an extensive background in finance, shop floor operations, manufacturing, and business process optimization, the company consistently delivers exceptional results on distributed generation projects of all types.

RA Power & Light performs a lot of free consulting to earn the right to design build commercial PV systems for industrial clients. To model and control where, when, and how commercial clients use energy, energy value chain optimization applies well-established supply chain principles to the energy value chain. We aspire to become trusted advisors to management, and that means people with the experience, conviction, and tenacity to see projects through to completion—and beyond. We never lose sight of the fact that the work begins when the EPC contract is signed, and we are once again tasked with proving we are the Company and team we say we are. We're in this business for the long haul—and RPL clients directly benefit. RA Power & Light began in commercial and industrial solar and will remain so. As competitors chase solar farms and residential markets, we have and will continue to stay the course in our chosen market segment. Commercial industrial solar requires a lot of patience. We're okay with that.

### Benefits and Costs to the Building Owner from the Proposed Solutions

PV Modules have for the most part settled, and we do not see imminent risk as long as it's a tier one, bankable PV vendor and the system has two service providers in place: RA Power & Light and our national O&M partner.

The far bigger technology risk today centers on energy storage. As 3-4 competing battery chemistries vie for market leadership, its inevitable pricing will erode significantly over the next 3-5 years, following a Moore's law trajectory of increased energy densities and lower prices. Early adopters of energy storage face the risk of dramatic price swings, potentially leaving a lot of money on the table entering the market before the shake out that is expected in 2017-2018. Clients with MW-class storage requirements would do well to wait until the market settles on a fair cost per kWh before moving forward. As far as which battery chemistry is best, we're betting Lithium Ferrous Phosphate and Toshiba's SCiB technology will emerge as market leaders.

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## Solar Provider Group

### Proposed Solutions

#### VENDOR RISKS

##### Workmanship

- Solar Provider Group (SPG) uses industry leading technology and German engineering, providing innovative solutions to optimize system performance and maximize the return on investment.
- SPG has its own affiliated racking company, KB Racking, which designs and manufactures the racking system, ensuring quality control over all parts of the system.
- All vendors are properly vetted through our internal process to guarantee world- class workmanship.

##### Project management tasks/timeline

- Seamless management from start to finish.
  - Project Open: permitting, complete any roof repairs, and finalize the design (20-30 days).
  - Installation: final inspections and reviews, equipment delivery, system installation, monitoring system set up (30-40 days).
  - Commissioning: operation date approval, final completion, submission of final reports to utility (2 weeks).
- Total construction time ~4-8 weeks (may vary depending on project size).
- SPG also offers an extensive Operations & Maintenance contract for 20 years, guaranteeing the highest level of minute to minute system monitoring.

##### Length of time in business and financial stability

- A decade of international experience, responsible for \$5 billion in energy investments.
- Over 500 clients worldwide (e.g., Siemens, LADWP, and Waste Management).
- Sister company, Ontario Solar Provider, ranked #1 fastest growing company in Ontario, Canada.

##### Reference

“SPG has been an excellent partner throughout the process, and we are very satisfied with the project to date. We highly recommend SPG’s services for any interested parties.” - Ashak Merani, Merani Hotel Group

## TECHNOLOGY RISKS

### Project cost

- Cost of solar has dropped by 60% over the past five years versus 5% over the last year.
- With the expiring 30% Investment Tax Credit (ITC) and the cost of solar at an all-time low, now is the most lucrative time to consider solar.

### System lifespan

- SPG will monitor each project real time and maintain them for the entire lifespan of the project under an O&M contract.

### Panel efficiency

- Over the last 5 years, there has been only a 5 % increase in panel efficiency.
- With panel cost at an all-time low and panel efficiency at an all-time high, SPG will find the most cost-effective option for each project.

### Energy storage

- Energy storage systems are often times not cost effective with the current high pricing and relatively low capacity.
- SPG will explore all energy storage options to determine your system's optimal performance.

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## West Hills Construction

### Proposed Solutions

**Building owner concern:** “I am worried about the reliability, workmanship, project management, length of time in business, experience, and expertise of solar developers. The solar developers I’ve met so far seem like ‘used car salesmen’ and I don’t want to deal with them.”

**Solution:** West Hills Construction (WHC) personnel have been developing construction projects for over 50 years. Our company develops to construct to ensure the projects we do will meet the level of quality and consistency we like to see in business. We don’t work with everyone, and are very selective on the projects we deploy for. Our quality of workmanship is second to none in any field of construction even outside of the solar industry. We can take any building owner to see any building or solar generating facility we’ve constructed over the last five decades to validate that claim.

Attached to every project will be one of our internal General Contractors, internal VP level Superintendent, a Project Manager, and an on-site Superintendent to oversee day-to-day construction activities. This is to ensure a level of project management that enables the project utmost efficiency and quality that could be provided to the project and within the industry. We have many best practices for the development process and the construction process that have were created and employed within our organization longer than some of the other solar developers have even been alive. We have true experience and history spanning billions of dollars of construction projects, and now we wish to utilize that experience and history for a project on your facility.

**Building owner concern:** “Building owners constantly question if now is the right time to move forward with a solar installation, shouldn’t a building owner just wait for the newest technology that would increase the benefits in relation to cost, lifespan and efficiency if they are constantly improving?”

**Solution:** Solar has been around for decades, and we’ve reached the end of the theoretical threshold of the type of solar technology that is readily employable today. Waiting for a better solution, that might or might not come to pass, would only create very small gains within a project’s economics.

HVAC and rooftop membranes—in regards to cost, lifespan, and efficiency—are constantly improving as well, but you wouldn't wait years for a better solution for those items if you need to build the building now otherwise it would always stop every project one would try to develop. You should develop to the opportunity, not the product, and with the utility needing solar generating facilities in your area, and that is what you should act on. Put the liability of running the system on your developer, general contractor, and operation and maintenance provider while you reap the economic benefits.

### **Benefits and Costs to the Building Owner from the Proposed Solutions**

What doesn't come around all the time are the programs a utility will offer for these generating facilities. Those types of opportunities are few and far between, and should not be taken lightly. Due to the fact they are not offered all the time by the utilities, and are one of the safest and credit worthy annual revenue streams that any building owner could hope for, they should not be discounted easily. Think of Southern California Edison (SCE) as a 20-year long-term tenant, whose length of revenue contracts don't come around often to building owners. How nice would it been to not have to renegotiate a contract every three or so years, or try to find another tenant for that revenue stream due to much shorter term contracts? Many of our clients that are real property owners who have taken our advice are very happy with their solar utility projects and the revenue stream. We can offer satisfied utility clients and references to discuss any question you may have.

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## 5. Permitting and approvals

Business owners do not want to navigate bureaucracies to secure necessary permitting and approval for a solar installation. This includes municipal agencies, associations, or a Board of Education and Division of State Architecture for schools. The lengthy application to receive Permission to Operate (PTO) from utilities is also a deterrent. Building owners want solar developers to bring turnkey solutions to these barriers.

Importantly, some building owners need approval from the landowner to make significant modifications. This structure, where the landowner is a separate entity from the building owner, is quite common in Orange County.

Other concerns in this area include a lack of support from municipal agencies, miscellaneous jurisdictional issues, and the long duration of contracts, as 20-year contracts can be perceived as too long.

In this section, solar developers propose a variety of solutions including:

- The developer holds all responsibility for securing approvals, permitting, code compliance, and project interconnection.
- The developer offers flexible contract terms to meet the building owner's preferences regarding length of the lease, construction timelines, insurance coverage, and legal liability.
- The developer offers a turnkey, headache-free solar solution, handling every aspect of project development.



## **Mirasol Development**

### **Proposed Solutions**

#### **WE TAKE CARE OF ALL PERMITTING AND APPROVALS**

By being a solar site host and leasing your property to us, you have no responsibility over the project development, construction, and operation. This means that you, as a property owner, will not be involved with any bureaucracies, municipal/state agencies, trade associations, or utilities. The only responsibility you incur is to honor a lease agreement and receive lease payments.

#### **OUR BUSINESS MODEL**

Mirasol Development's business model centers on the secondary use property lease structure. We want to lease unused property from you and make you a solar site host. This model is absolutely simplistic for both parties, with minimal risk. This allows you to benefit financially from solar, assume zero costs, incur no liability and have no project responsibility.

### **Benefits and Costs to the Building Owner from the Proposed Solutions**

#### **BENEFITS**

- NO responsibility for any aspect of development, construction or operation and management of the project.
- Remain focused on your core business.

#### **COSTS**

- Minimal legal fees if outside council is needed to review the lease agreement.

### **Contact Information**

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## NRG

### **Proposed Solutions**

NRG understands the hesitations that building owners have when it comes to environmental permitting and interconnection efforts. To answer this issue, NRG has built an in-house team that takes care of all permitting, jurisdictional, and interconnection efforts within the project management of the solar installation. This allows our team to present turnkey solutions, with all project management efforts included, to the customer. Of course, there are times when the unexpected occurs and building owner's participation will be needed, but our experience and breadth allows us to foresee issues that would be unnoticed by less experienced solar installers.

### **Benefits and Costs to the Building Owner from the Proposed Solutions**

20 year contracts are the norm in the C&I solar industry, but we do have the ability to introduce other contract lengths, depending on customer wants and needs.

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## Solar Provider Group

### Proposed Solutions

#### PERMITTING AND APPROVALS

- Solar Provider Group (SPG) handles the entire permitting process on state and local levels.
- SPG Project Managers work directly with all parties involved to get the proper approvals.

#### STATE LEVEL REQUIREMENTS AND LOCAL ORDINANCES

- SPG is fully aware of Title 24 and will adhere to the California Electrical Code, California Building Code, California Energy Code, and California Fire Code.
- All SPG structural and electrical designs are compliant to California state codes.
- SPG will work with a state inspector throughout the entire construction process to ensure state and local standards are met.
- SPG requires final approval of design sets from a California licensed engineer for all projects.
- SPG will work with local agencies and municipalities to build a system in adherence to all local building ordinances.

#### LENGTH OF CONTRACT

- Long contract lengths are not unprecedented in real estate transactions, and ownership of solar systems is easy to transfer upon the sale of a building (e.g., cell tower contracts).
- In comparison to cell tower contracts, solar contracts do not have the ability to control the sale of the building or any aspect thereof.

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## West Hills Construction

### Proposed Solutions

***Building owner concern:*** Business owners do not want to navigate bureaucracies to secure necessary entitlement and permitting approvals for a solar installation, and might need approvals from landowners to make any significant modifications to the premises. They also feel there is a lack of support from municipal agencies, and miscellaneous jurisdictional issues that prohibit these types of projects from moving forward.

***Solution:*** West Hills Construction (WHC) will develop and turnkey solution for your project utilizing construction and development experience that spans 130 linear years and five generations of our family within the Design/Build General Construction industry. We will handle all entitlement and permitting processes for any project we are party to, including solar projects. WHC is already working with many of the large landowners in your area to approve certain aesthetic concerns to solar systems to make sure all parties involved in the process approve our projects.

WHC will gain full support and approvals from all parties within the project before moving forward with any construction activities. We've never had a solar project been denied by any agency having jurisdiction over any part of one of our projects. We are very comfortable with all entitlement processes with every agency one would deal with on these projects due to our history of general construction, which spans over fifty years in the geographic regions these projects would be installed in. We've already built buildings over the past five decades in Orange County, and are very familiar with the intricacies and entitlement problems that could crop up during a project where your facility is located. We are not worried about local entitlement jurisdictions, and—with WHC developing and constructing the project—neither should you.

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## 6. Other

Other building owner concerns, such as safety issues and contract flexibility, are inherent in all solar development projects. Some solar developers have identified others building owner issues they have encountered, as well as their solutions.

In this section, solar developers propose a variety of solutions including:

- The developer takes sole responsibility for site safety and operation.
- The developer offers a lease that gives the building owner maximum flexibility for bringing new tenants or business activities into the building.



## **Mirasol Development: *Safety and security***

### **Proposed Solutions**

#### **WE MAKE SURE OUR PROJECTS ARE SAFE AND SECURE**

By being a solar site host and leasing your property, you have no responsibility over the project construction and operation. Mirasol Development is solely responsible for site safety and operation. You can be assured that a solar project on your property will not pose any safety risk to your business.

#### **OUR BUSINESS MODEL**

Mirasol Development's business model centers on the secondary use property lease structure. We want to lease unused property from you and make you a solar site host. This model is absolutely simplistic for both parties, with minimal risk. This allows you to benefit financially from solar, assume zero costs, incur no liability, and have no project responsibility.

#### **WE ARE RISK AVERSE AND MAINTAIN THE HIGHEST SAFETY STANDARDS**

Mirasol Development ensures that the project site remains safe and compliant during its entire productive life. This means that during construction, we have a guard on the premises during off-hours to secure the equipment. We also maintain construction risk insurance to safeguard against any damages. In other instances, surveillance video and alarm systems will be put in place protect from any trespassing or potential theft. Mirasol Development is a highly risk averse firm and goes above and beyond typical protocol to keep worksites safe and operating efficiently. If for any reason you have an issue with the way we are overseeing and maintaining the construction site, we are more than happy to discuss your concerns and make the necessary accommodations.

#### **SECURE EQUIPMENT**

Solar installations are our business. We strive to utilize the highest caliber products to ensure the longevity and reliability of the electricity generated. We use double thickness insulation in all of our wiring, panel connectors that need special disconnect tools, all wiring is run through encapsulated conduit, combiner boxes and inverters are locked, and larger wire runs are trenched four feet underground. We make sure that are systems are designed to be extremely safe and redundant to protect against potential system faults, and are difficult for the public to access.

## **Benefits and Costs to the Building Owner from the Proposed Solutions**

### **BENEFITS**

- No liability.
- No need for additional insurance coverage.
- Security measures in place during construction.
- Highest quality equipment and safety standards used ensuring safe operations.
- Create better illumination with LED lighting under carports.

### **COSTS**

- Minimal legal fees if outside council is needed to review the lease agreement.

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## West Hills Construction: *Contract flexibility*

### **Proposed Solutions**

*Business owner concern:* If I leased West Hills Construction (WHC) space on my roof or parking lot, it might hinder new tenants in the future or future business operations for anything I/they might need in that same space for business.”

*Solution:* WHC has development guidelines when it engineers the system and details options for the building owner within their lease to deal with this issue. We do not want to infringe upon the main business that the building owner enjoys, and has put in many options within their lease to help move the system around to make sure that a site lease for solar allows the maximum flexibility for the building owner to bring new tenants or business activities into the building and be able to offer roof or parking lot space to them regardless of how big the solar system is that is installed on the roof or in the parking lot.

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# Directory of solar developers

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*Submitted abstracts:*

[Facility concerns](#)

## **Mirasol Development LLC**

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*Submitted abstracts:*

[Economic considerations](#)

[Outside core business area](#)

[Facility concerns](#)

[Vendor and technology risk](#)

[Permitting and approvals](#)

[Other: Safety and security](#)

## **NRG Energy, Inc.**

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*Submitted abstracts:*

[Economic considerations](#)

[Outside core business area](#)

[Vendor and technology risk](#)

[Permitting and approvals](#)

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*Submitted abstracts:*

[Economic considerations](#)

[Outside core business area](#)

[Facility concerns](#)

[Vendor and technology risk](#)

## **Solar Provider Group, LLC**

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*Submitted abstracts:*

[Economic considerations](#)

[Facility concerns](#)

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[Economic considerations](#)

[Facility concerns](#)

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[Other: Contract flexibility](#)