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9:30 AM – 10:45 AM

Workshop 11

***Paradise Reclaimed:
Placing [Solar] Panels in the Paved Parking Lot (and Up on the Roof)***

Presented to

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I. Introduction (“Getting to Know You.”)

- A. Who are We?
- B. Who are You? (Yes, we really want to know!)
- C. What is the Topic? (“Here Comes the Sun”)

Shopping center owners, as well as anchor/big box tenants, are installing solar energy systems on un(der)utilized roofs, parking areas, and property. This workshop explores the motives and methods for going solar, as well as issues that need to be addressed when making that choice.

II. Solar – Why Do It?

- A. Energy Independence
 - 1. Reduce energy costs

Improvements in solar capture and conversion technology have greatly reduced the cost of solar-generated electricity, both objectively and as compared to utility-provided electricity rates. Ditto the cost, capacity, and effectiveness of battery storage. For shopping center owners whose leases include a (fixed) per square foot charge to tenants for electricity, these reduced energy costs increase profit margins. For direct-metered tenants and sub-metered tenants, the addition/substitution of solar-generated electricity means lower overall energy costs. And then, there are the tax incentives! (See below.)

2. Hedge against cost increases

The cost of production of a utility-generated kWh continues to increase in many markets, whether the result of increases in the cost of carbon-based fuel, labor, O&M, regulatory compliance, or otherwise. As developed nations face the growing demand for reduction in carbon emissions – including the renewed call for taxes on the use of carbon-based fuels – those costs likely will continue to increase. Solar power systems are a hedge against such cost increases.

3. Net metering

In those situations in which the electricity produced by a solar power system exceeds the demands of the shopping center, many jurisdictions allow the owner of the system to sell – and/or require the local electric utility to buy – the excess electricity. These transactions, known generally as net metering, produce new revenue for the solar power system owner, further reducing costs (and increasing profit) for the shopping center owner and/or tenant(s).

B. Enhance LEED certification

LEED certification is all about “points.” The LEED scale awards points for solar energy generation based on the percentage of a building’s energy usage provided by solar. The higher the percentage, the higher the number of LEED points. The higher the number of LEED points, the greater the possibility to enhance the level of LEED certification.

NOTE: The most recent LEED standards promote “cradle to grave” certification for products, i.e., the energy involved in the manufacture of the product, the lifespan of the product, and the energy (if any) involved in its disposal. Look for “cradle to grave” certification on solar panels.

C. Marketing & PR

1. Attract tenants and customers

According to a 2015 Nielsen study those consumers in the [“greener generation”](#) are 13% more likely to choose a more expensive but environmentally-friendly product or service over standard industry goods and services.

2. Command higher rents

Although most studies to date focus on office buildings, all of them consistently show increased rent rates for “green” properties, ranging from 4%-9%. Notably, those studies also show increased tenant retention. Given consumer preferences (see above), and the pressure on retailers to go/be “green,” if follows the same increased rent rates should occur in green shopping centers.

D. Grants, Subsidies, and Tax Credits

In many instances, it may be possible to reduce the cost of purchasing and/or installing solar power generation systems through various incentives offered by federal and state governments. The federal Investment Tax Credit (ITC), for example, is a credit for a significant percentage of total system cost. The system owner is also allowed to depreciate the system under the 5-year Modified Accelerated Cost Recovery System (MACRS), subject to certain conditions. (By the time of the conference, the Biden Administration may have proposed additional incentives. Stay tuned!) Many states offer different or additional incentives, such as rebates, renewable energy credits (RECs), and financing programs. Where applicable, these incentives in aggregate may cover 45%-80% of the overall cost. Finally, even if an owner can't take advantage of these tax benefits directly, third parties can often monetize them in different ways and still reap the benefits.

E. Revenue from "Non-Productive" Areas

1. Parking Lot
2. Rooftops

Solar presents an opportunity to transform historically "dead spaces" into revenue-generating (pun intended) assets. As discussed below, whether placed down in the parking lot or up on the roof, multiple opportunities exist to go green and generate green. Kimco has been doing solar [for more than a decade](#), and earlier this year [announced five new solar projects](#). Just over a year ago, in October 2020, Westfield completed [solar projects at three shopping centers](#). Simon completed a [huge solar project at the end of 2019](#). Those are just a few examples!

And it's not just owners/developers. Target, for example, made solar part of its branding program, arranging the panels on at least one of [its 500 rooftop solar power systems](#) in its recognizable [Bullseye!](#)



III. Your Solar Team (“Once I built a tower to the sun ...”)

A. Solar Contractor

1. Feasibility and Financial Analysis

As with any real estate-related feasibility study, a solar feasibility study explores whether your proposed site is both technically and financially appropriate for the installation of a solar power system. Such a study is the necessary first step in the process of developing a solar power system. A proper solar feasibility study will address multiple critical issues associated with your proposed site.

- The amount of potential solar energy generation;
- Identification of risks and ability to mitigate them;
- Availability of governmental (state/regional/municipal) financial incentives;
- Cost assessment for technical design, installation, operation and maintenance;
- Project simulation and modeling;
- Calculations of long term yield, ROI, and projected payback;
- Uncertainty assessment on yield and generation; and
- Overall technical and financial feasibility report.

The US EPA has a very helpful [resource guide](#).

2. Design

Armed with the solar feasibility study, the solar contractor will design your solar power system. Although perhaps obvious, the design of rooftop systems requires consideration of issues far beyond how many panels will be needed to satisfy user demand. As explained last year in *Building Enclosure*:

When installing rooftop solar, there are a few important questions to consider.

- Is the life expectancy of the roof system likely to exceed that of the photovoltaic system (PV array)?
- Has the roof system and PV layout been coordinated to facilitate maximum solar output, maintenance and safety?
- What are the potential risks of deviating from best practices to reach a lower cost solution?

For a more detailed analysis of roof-related issues, read the *Building Enclosure* [article](#).

3. Installation

a. Whose Roofing Contractor?

Again focusing first on rooftop installations, a big question with many potential legal ramifications is who gets to pick the roofing contractor. Answering that question involves an analysis of roof rights, as well as roof-malfunction liabilities. The solar power system needs to be installed while respecting other existing and/or planned roof uses (e.g., HVAC; telecom), and without diminishing the integrity of the roof.

B. Architect

There are many obvious roles the architect may play with respect to a solar power system: integrating a system into a building design; building placement to maximize generating capacity; etc. For a fascinating read on the next wave of “solar architecture,” take a look at [this recent piece](#) in *ArchDaily*.

C. Lawyer(s) (Possible suspects: Real Estate, Construction, Enviro, Zoning)

D. Tax Specialist (CPA)

E. Insurance Broker

IV. Where to Do It? (“Why don’t we do it in the road?”)

A. Parking Lots

1. Carports

- Steel structures built over parking spaces to support solar panels. Usually cost-effective only when (i) insufficient roof space is available (because of conflicts with

HVAC and other existing rooftop equipment), and (ii) installed over ground level parking lots (placing atop existing parking garages is seldom economical).

- Design can affect ability to claim investment tax credit on project costs allocable to carport structure. Consult with CPA or tax attorney during project design to determine latest eligibility criteria.

2. EV Charging Stations

Although not intended as a revenue generator, EV charging stations already are valued by consumers, and that value will rise significantly as car makers transitions from gas to electric vehicles. Target, for example, installed it 114th charging site in 2020.



B. Rooftops

- Most common but solar contractor must evaluate suitability based on conflicts with existing rooftop equipment. Additional considerations: age of existing roof membrane and impact on roof warranty.

C. Undeveloped Grounds

- Solar panels erected on steel racking system placed on concrete piers.

V. How to Do It (“To b[uy], or not to b[uy]. That is the question.”)

A. Buy the Solar Power System

- Purchaser (landlord or tenant) own the solar system from the beginning and may claim all tax benefits. Most often the best return on investment if purchaser has available financing and income to utilize tax benefits.

B. Lease the Solar Power System

- System is owned by a third-party who receives all tax benefits.
- Customer pays a flat monthly payment regardless of how much energy the system produces (so customer assumes risk of system under-producing).

C. Buy the Solar Power from Someone Else’s System – Power Purchase Agreement (PPA)

1. On-site installation (more common)

- Similar to lease except customer only pays for each kilowatt hour of electricity produced (similar to purchasing from utility). Customer avoids risk of system under-producing.

2. Off-site installation.

- Rare because state utility regulation typically prohibits non-utilities from selling energy to others located on a different parcels, with limited exceptions sometimes provided for adjacent parcels.

D. Facilitate a Competitive Procurement Process for Larger Systems

- Retaining a consultant to prepare an RFP that’s issued to multiple providers.
- To increase and facilitate competition, RFP should include: description of desired system size and areas where it can be installed (roof, carports, groundmount); specify desired project structure (purchase, PPA, lease, or any combination thereof); include available as-built documents depicting construction of selected areas; include details about type, age and manufacturer warranty continuation requirements of existing roof; and specify system warranty requirements.

VI. Contractual Terms 1 – [Solar] Developer and Solar Supplier/Installer

A. Installation/Construction issues

1. Access

- To solar panels and inverters for installation, annual maintenance, and removal

2. Roof Work / Impact on Roof warranty
 - Most (but not all) rooftop installations require penetrating existing roofing membrane. Consult manufacturer of existing roof membrane to determine approved installation method that won't void roof warranty.
 - Consider replacing roof membrane if remaining life is < 10 years to avoid cost of removing solar system to facilitate later membrane replacement.
 3. Insurance (including post-installation damage)
 - Consider builders' risk coverage for damage or loss to solar system during installation.
 - Modify property coverage to include damage to the solar system, as well as property damage caused by solar system from electrical fires or leaks through roof penetrations.
 - Insurance obligations vary in leases and PPAs.
 4. Tenant Disruption
- B. O&M issues
- Solar panels require periodic cleaning to remove dirt and dust to ensure maximum energy production, typically once per year but sometimes twice if close to highway (soot from vehicle exhaust).
 - Manufacturer warranties (especially inverters) typically require basic annual maintenance that can be performed only by solar contractors and qualified technicians.
- C. Performance Guaranty
- Installation contractor (for cash purchases) or solar system owner (in leases and PPAs) guarantees the solar system will produce a minimum number of kilowatt hours each year.
 - Production estimates are based on computer models and guarantees are a percentage of that estimate (usually 90-95%).
 - Unnecessary for PPAs because customer only pays for what the system actually produces.
- D. Tax Credits / Renewable Energy Credits / Other Financial Incentives
1. Federal tax benefits:
 - Investment tax credit provided to solar system owner for a declining percentage of system cost: 26% for systems built in 2021 and 2022; 22% for those built in 2023; and 10% thereafter. Strong potential for percentages to change based on legislative

efforts to address Climate Change. Consult with CPA and solar provider to determine if any related project costs beyond solar equipment and installation can be included in tax basis.

- Accelerated depreciation (MACRS) that allows solar system to be depreciated in 5 years, with bonus depreciation allowed in specified instances (consult CPA).

2. Renewable Energy Credits (RECs)

- Value attributed to the environmental benefits of producing electricity with renewable sources.
- Some jurisdictions substantially incentivize solar by making payments to whoever owns the RECs associated with solar system production.
- Customer should always own RECs if they own the system. REC ownership is negotiated in PPAs and Leases.

3. Other Incentives

- Check your local and state jurisdiction, and applicable utility, to determine whether additional incentives are available. Incentives have been customarily more prevalent in states where the government is controlled by Democrats.

E. Warranties

1. Solar System warranty

- Solar panels manufacturers typically warrant against defects for 10 years and against excessive decreases in electricity output for 20-25 years.
- Inverter manufacturers warrant their products for 5-10 years, with an option to purchase extended warranties at additional cost. Inverters are the components that most often fail, so extended warranties are recommended.
- When buying the system outright, carefully review the installation contractor's warranty obligations. Try to negotiate for contractor to backstop manufacturer warranties for a specified period.

2. Solar System effect on roof warranty

- Follow warranty continuation requirements established by roofing manufacturer for installation of solar systems. Ensure that agreement with installation contractor or PPA provider / leasing company fills any coverage gaps for roof failures caused by solar system.

F. Additional Considerations for PPA or Lease:

1. Price escalators

- Kilowatt hour pricing (PPAs) or rent (leases) typically escalates each year. Justified by fact that solar system offsets energy purchased from customer's utility whose rates typically increase annually. Escalators should not exceed your utility's historical price increases.

2. Purchase Options

- PPAs and leases almost always grant the customer a prescribed opportunity to purchase the solar system at select periods after the 5th year (because that's when the recapture period ends on federal tax benefits)
- Purchase price is typically based on a determination of the system's fair market value at the time of purchase. But some prescribe less favorable pricing based on a discounted value of avoided electricity purchases or rent for the remainder of the term.

3. Default Remedies in PPAs and Leases

- Typically require customer to pay a termination payment following a customer default.
- Termination payment is substantially higher for defaults during the first 5 years after the system is placed in service because the system owner must repay a portion of the federal tax benefits it received.
- Carefully scrutinize termination payment calculation for customer default after 5th year to avoid obligation substantially disproportionate to what would occur if customer exercised whatever purchase option is provided.

VII. Contractual Terms 2 – Landlord and Tenant

A. Is this Space Taken?

1. Who owns the rights?

a. Owner/Landlord

The issue here is whether, and to what extent, the Owner/Landlord has retained roof rights (or parking lot rights), or granted those rights, in whole or in part, to one or more tenants. If the former, then the Owner/Landlord likely has the ability to develop and install a solar power system, or agree to allow the Tenant to do so. In the former scenario, a possible lease (or rider) provision might read:

Notwithstanding anything in this Lease to the contrary, Landlord shall have the right, from time to time during the Lease Term and subject to Applicable Laws, to install systems

and equipment in the Shopping Center (including, without limitation, the Common Areas of the Shopping Center) that will generate alternative or renewable energy and/or to obtain alternative/ renewable energy from third party vendors for consumption in the Shopping Center or any part thereof, but shall have no obligation to do so. In the event that Landlord exercises the foregoing right, Landlord shall be entitled to install, or cause to be installed, equipment and other appurtenances in and around the Shopping Center and the Premises as necessary to cause alternative/ renewable energy and/ or recycled water to be furnished to the Shopping Center or any part thereof. Tenant hereby agrees to cooperate with Landlord in connection with the foregoing.

See ICSC Shopping Center Study Green Lease (out of print).

In the latter scenario, a possible lease (or rider) provision for a rooftop might read:

Subject to the terms and conditions contained in this Lease, Landlord hereby grants to Tenant and Tenant agrees to accept the non-exclusive, as to other non-solar uses, right to use the Rooftop for the installation, operation and maintenance, at Tenant's sole cost and expense, of the Solar Equipment. Throughout the Term of the Lease, as described below, Landlord hereby grants Tenant an easement through the Building, including all elevators, stairways or other access points of egress and ingress for purposes of accessing the Rooftop for the purpose described herein and pursuant to the terms and conditions of Section XX below.

See Draft Model Rooftop Solar Lease (attached).

b. Tenant

Where a Tenant already has roof rights (or parking lot rights), the issue becomes whether those rights are so broad as to allow the Tenant to develop and install a solar power system.

2. Are those rights exclusive?

a. Roof

- HVAC
- Telecom

b. Parking Lot

- Allocated/Designated Areas/Spaces

B. Tax Assessments/Impositions

So now your solar power system is in place. Have you checked whether a separate tax assessment is available for the rooftop (or parking lot) equipment? If the Tenant installed or benefits from the system, the next issue is allocating the resulting impositions. If separate assessment is not available, the rooftop lease should allocate the taxes between landlord and tenant, since the value of the rooftop improvements compared to the building value can be significant.

C. Traps for the Unwary

1. Green Ergs and CAM

Does the existing retail lease CAM provisions require the Owner/Landlord to use revenue derived from common areas to reduce overall CAM costs? If so, the Owner/Landlord needs to consider how to

structure the solar power system transaction. It may not be advantageous to have the Tenant act as developer and pay the Owner/Landlord a fee for roof or parking lot rights.

2. ... and now it's Premium

The installation of a solar power system likely will affect insurance premiums. The retail lease now needs to address whether, how, and to what extent to allocate those premium increases between Owner/Landlord and Tenant(s).

3. Purse (with) Strings

You managed to offset some of the cost of your solar power system through the successful identification and use of government funds and/or incentives. Did you read the fine print associated with those funds more carefully than the Terms of Use on any of your apps? Some of those government incentives have included terms totally unrelated to the solar power system, such as one that required the recipient to participate in affirmative action hiring programs.

4. Shape Shifter (Landlord as Utility)

Your client, the Owner/Landlord, "owns" the roof or parking lot, and the solar feasibility study confirms it is a perfect site for a solar power system. Your client wants to charge the Tenants a rate per kilowatt hour less than the utility charges the Tenants, but more than it costs your client to generate. If you give your client the thumbs up, in some/many jurisdictions you just transformed your client from a real estate magnate into utility, and subjected your (former) client to all the utility-related regulations.

D. Someone Call Security!

Lease provisions for rooftop installations, particularly rooftop with multiple uses (HVAC, telecom), need to address the issue of access to perform O&M.

1. How will access be provided?
2. How will security be provided to oversee such access?
3. How will the costs of security be allocated?

E. And, in the End

1. Who owns what?

- For PPAs and Leases:

- Most agreements provide an option for the customer to purchase the solar system at specified periods after the federal tax benefits have been fully secured. Review (and negotiate) these provisions carefully.

- Customers usually benefit by structuring purchase price to be based on a fair market value determination that is specifically required to credit the cost the PPA/Lease provider would incur to remove the system from customer's property.
- As between Landlord and Tenant:
 - If Tenant will own solar system, Landlord and Tenant should execute a lease amendment regarding its disposition at the end of the lease term.
 - If Tenant is the customer under a PPA or Lease, Landlord's approval of the PPA or Lease should be required to ensure Landlord has satisfactory rights at the conclusion of the agreement (perhaps including a right to exercise the purchase option).

2. Removal costs

- It's seldom cost-effective to remove a solar system from one location and relocate it to another because labor costs are the largest cost component and the market for used solar equipment is limited.
- In a PPA or Lease, the customer should negotiate for the purchase option to be structured so that removal costs are deducted from any calculation of the system's fair market value.
- If the solar system is installed for the Tenant's benefit, provision must be made for removing the system or transferring its ownership to Landlord at the end of the Tenant's lease.

F. Additional Resources:

1. Additional template agreements published by the Solar Energy Industries Association:

www.seia.org/research-resources/model-leases-and-ppas

2. National network of O&M providers: www.amicusom.com