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Solar PV for Hospitality

On-Site Commercial Solar PV Decision Guide for the Hospitality Sector

November 12, 2015

Navigant Reference: 173733

Following *the On-Site Commercial Solar PV Decision Guide,* the Hospitality Sector guide will serve as a more targeted resource for hotels and other lodging businesses.

www4.eere.energy.gov/alliance/sites/default/files/uploaded-files/solar-decision-guide.pdf

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- Location
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Based on interviews with market actors, secondary research, and industry experience, the Renewable Integration team decided to make hospitality the subject of one of the first sector-specific solar PV guides.

Findings	Conclusions	
Sustainability measures and environmentally-friendly programs are becoming increasingly popular.	**The sector is interested in going green.**	✓
The U.S. lodging industry spends over $8 billion on energy.	**Solar PV would reduce expenses.**	✓
Energy is a material portion of overall operating costs.	**Solar PV would reduce expenses.**	✓
There are also a number of barriers inhibiting hotels from going solar, including a lack of awareness of benefits.	**Decision-makers would find a guide to be useful.**	✓

Source: "2013 AH&LA Sustainability Report." American Hotel & Lodging Association, 2013

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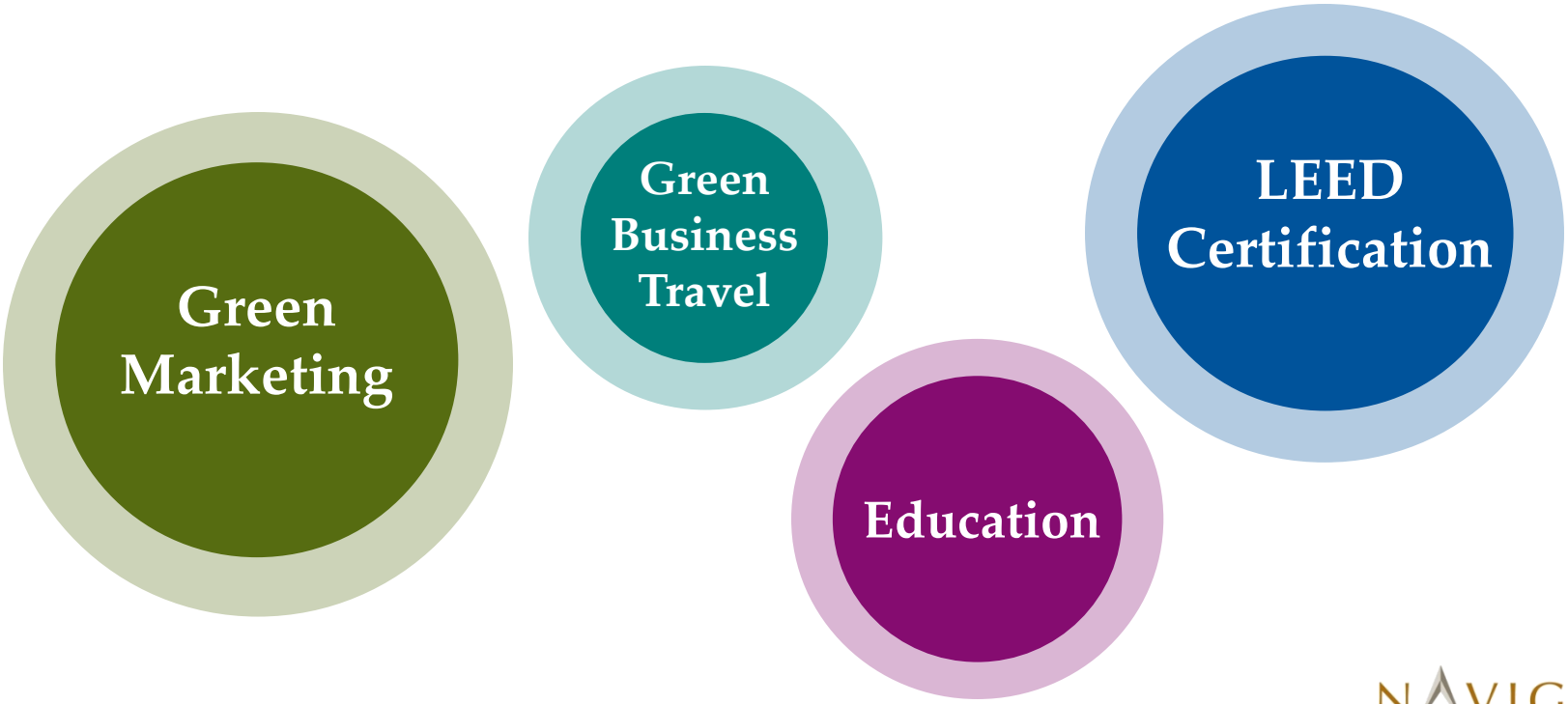
Motivations for going solar:

1. Corporate social responsibility and environmental concerns.
2. Increasing the satisfaction of environmentally-aware guests.
3. Providing equal comfort to guests while reducing operating costs.

Guests are also increasingly aware of hotel environmental policies.



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Electricity contributes materially to overall operating costs. Solar PV can offset a significant amount of the building's electricity use for air conditioning, indoor and outdoor lighting, and electronics.

» For a full service hotel, energy costs are usually between 4-6% of revenue, and historic and luxury hotels may see energy costs reaching 10% or more.

1 Consider the long-term investment

A solar installation is not just an expensive sustainability measure. It reduces operating costs and typically generates a good return on investment over its 25+ year operating life.

2 Investigate financing strategies

For example, solar developers offer leases or power purchase agreements for solar projects, reducing or eliminating the upfront investment.

Source: Managing Energy Costs in Full-Service Hotels, National Grid.

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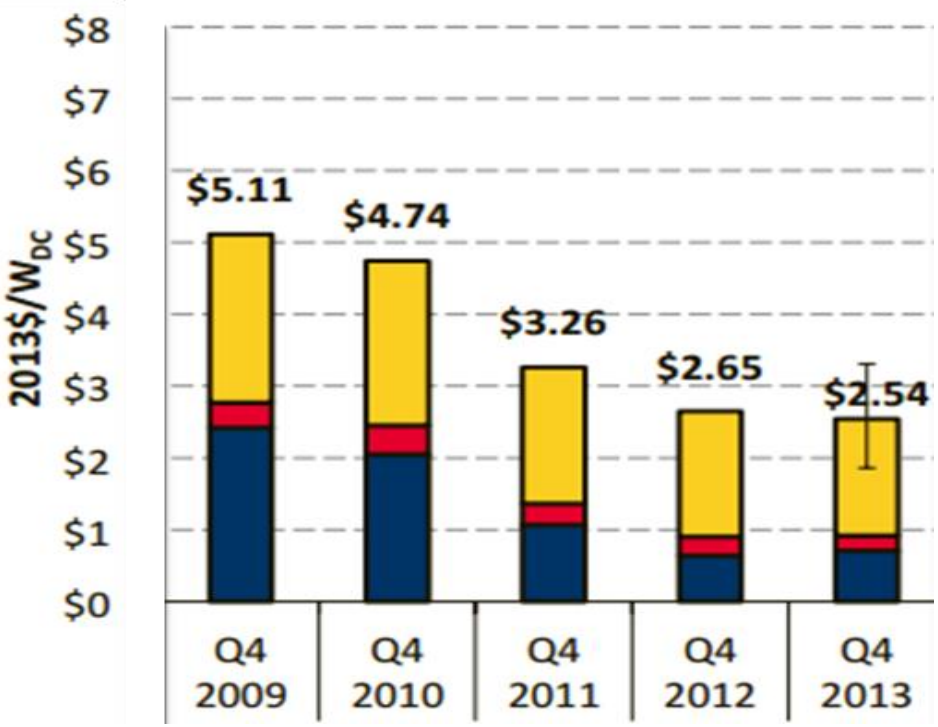
If you considered solar PV several years ago, now may be the time to look again. Electricity prices have steadily increased in many states while solar PV prices have decreased dramatically.

NREL Modeled Commercial PV System Prices



Source: Photovoltaic System Pricing Trends: Historical, Recent, and Near-Term Projections. 2014 Edition. U.S. Department of Energy SunShot, NREL/PR-6A20-62558.

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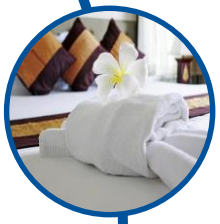
Although interest is relatively high and several hospitality PV projects have been installed, there are also a number of challenges.

There are various different hotel management structures and hotels change hands relatively frequently. This complicates approval and funding decisions, and makes long-term financing arrangements difficult and a short payback period essential.



Hotel owners and managers focus primarily on their main business: selling rooms. Few fully understand or focus on on-site electricity generation like solar PV.

Hotel owners may not be comfortable committing large capital to energy projects, and a hotel franchisee may have a limited partnership agreement without access to a parent company's capital.

Many hotels have physical constraints—roofs are crowded with other equipment, too small, aged and in need of replacement, or not structurally sound enough to bear additional weight.

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With limited roof space, evaluate the alternative of a carport-mounted solar PV array for the parking lot or parking garage, or a ground-mounted array on unused land.

Carport Array

- Shades cars from the sun
- Shelters cars from rain and snow
- Provides a location for electric-vehicle charging
- Provides a highly visible commitment to clean energy

Con: More expensive due to extra structural materials

Ground-Mounted Array

- Utilizes unused land
- Provides room for a larger array, meeting more of the building's electricity requirements
- Often less expensive than roof or carport systems

Con: Only works for a hotel with empty land

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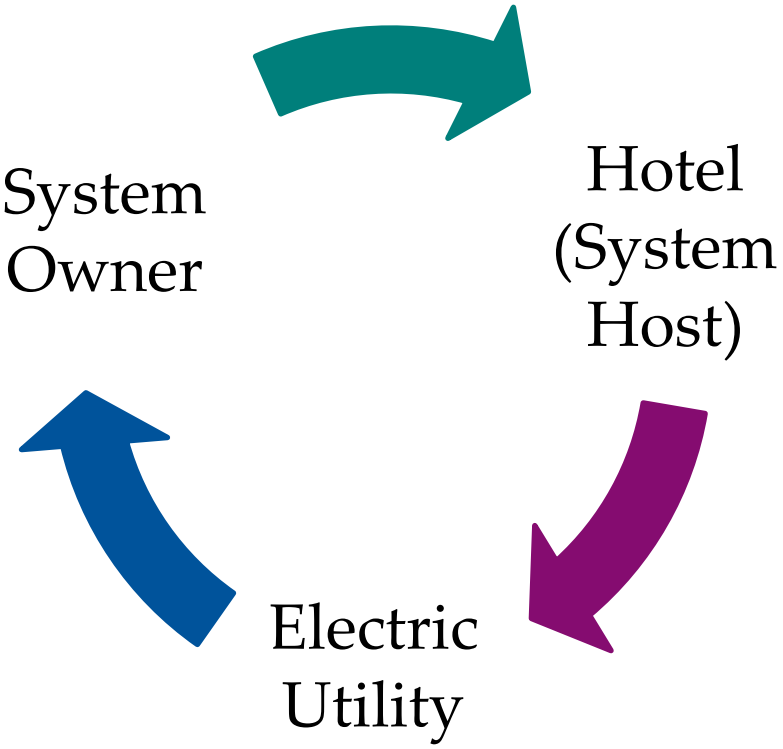
Third-party ownership of the solar installation can reduce electricity bills immediately with little risk and no upfront capital.

» **Power purchase agreement:** The hotel owner pays for solar electricity and hosts but does not own the system.



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One barrier mentioned was the frequent turnover of hotel buildings. A power purchase agreement can also overcome this barrier with…

1. A 10-year contract
2. Credit rating terms defined for new owners
3. No owner change penalty fees

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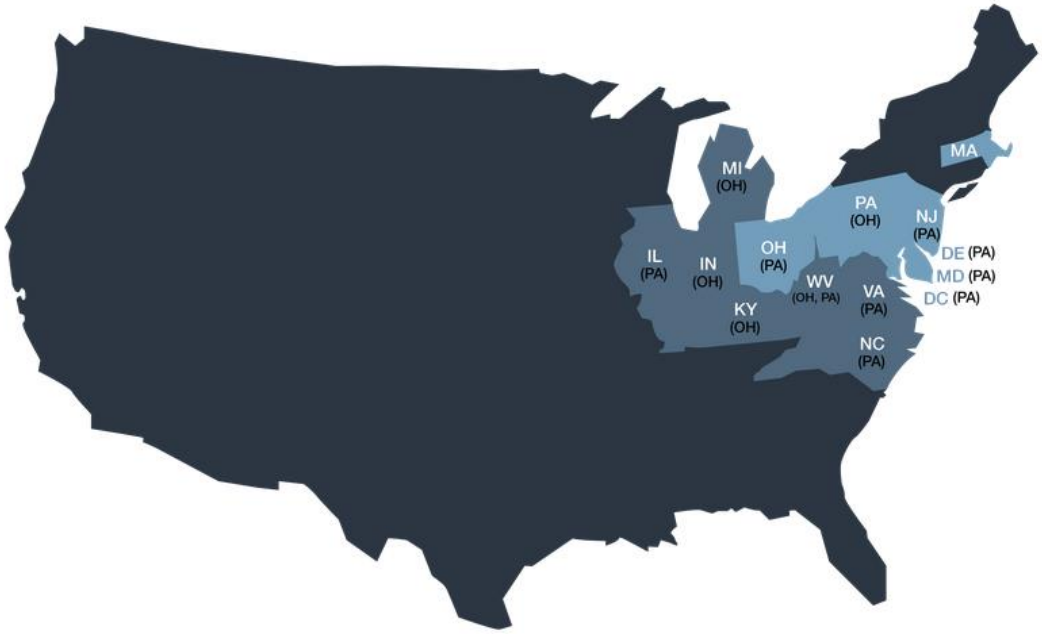
Hotels making an upfront purchase should work with the solar installer to determine available financial assistance.

- Local utility and municipality incentives, grants, or loans.
- Local green building program incentives.
- Solar Renewable Energy Certificate sales.
- SBA Green Loan Program

Solar Renewable Energy Certificate Markets



Source: www.srectrade.com/srec_markets

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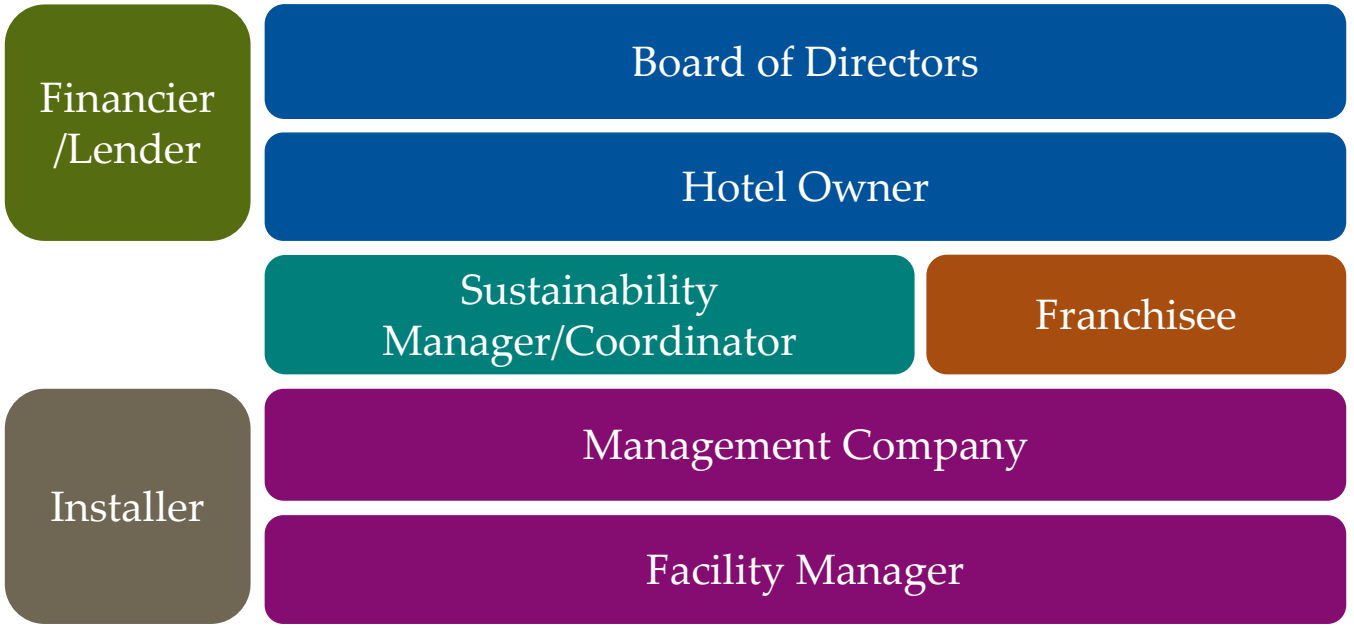
The hotel owner is often not the property manager or on-site operator. Many hotels are also franchises of a parent brand. Project buy-in is important at all levels.

Illustrative Stakeholders for a Solar PV Project



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Effectively connecting with guests will assist with project execution and realizing the marketing benefits.

- ✓ Informational leaflet
- ✓ Lobby or other communal display poster
- ✓ Lobby or other communal digital screen
- ✓ Renderings and photographs
- ✓ Advertisements for electric car charging

The TripAdvisor GreenLeaders Program showcases eco-friendly hotels and B&Bs and has been integrated with the American Hotel & Lodging Association Green Guidelines.

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Conclusion

Hotels and other lodging businesses are increasingly looking for ways to save on operating costs, increase sustainability, and better serve guests. Going solar is one way to achieve these aims.

The *On-Site Commercial Solar PV Guide for the Hospitality Sector* is an accessible resource designed to facilitate decisions around going solar.

Find this and other guides at:

https://www4.eere.energy.gov/alliance/activities/technology-solutions-teams/lighting-electrical/renewables-integration/solar

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Key CONTACTS

William Goetzler, Director-in-Charge
Managing Director
Burlington, MA
781.270.8351
wgoetzler@navigant.com

Jay Paidipati, Project Manger
Director
Boulder, CO
303.728.2489
jpaidipati@navigant.com

Laura Vogel
Senior Consultant
San Francisco, CA
415.399.2132
laura.vogel@navigant.com

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Case Study

BETTER BUILDINGS WEBINAR 2015

REC SOLAR &
HAMPTON INN & SUITES
BAKERSFIELD NORTH AIRPORT

Who we are

JOSIE BROOME
Director of Business Operations
REC Solar

BRAXTON MYERS
VP of Operations
Blackstone Hospitality Group

Assessing Your Energy Needs

Energy Profile: Hampton Inn Bakersfield North

- 94-room hotel
- 52,000 Square feet
- Average monthly energy costs: $11,000
- Worst offender: HVAC/VTAC, Outdoor lighting
- Goal: Cut electricity costs while providing new amenities to guests

"In a typical lodging facility, lighting, space heating, and water heating represent close to 60 percent of total use, making those systems the best targets for energy savings."

Building & Construction Authority

Identifying Goals

- Achieve monthly cost savings
- Fast ROI
- Show commitment to sustainability
- Customer amenity upgrade

Our Solution: Solar Carports

Installation Process

- REC Solar installed a 102 kW DC array
- System was mounted on 3 large carports on the facility's parking lot
- Installation took 6 weeks

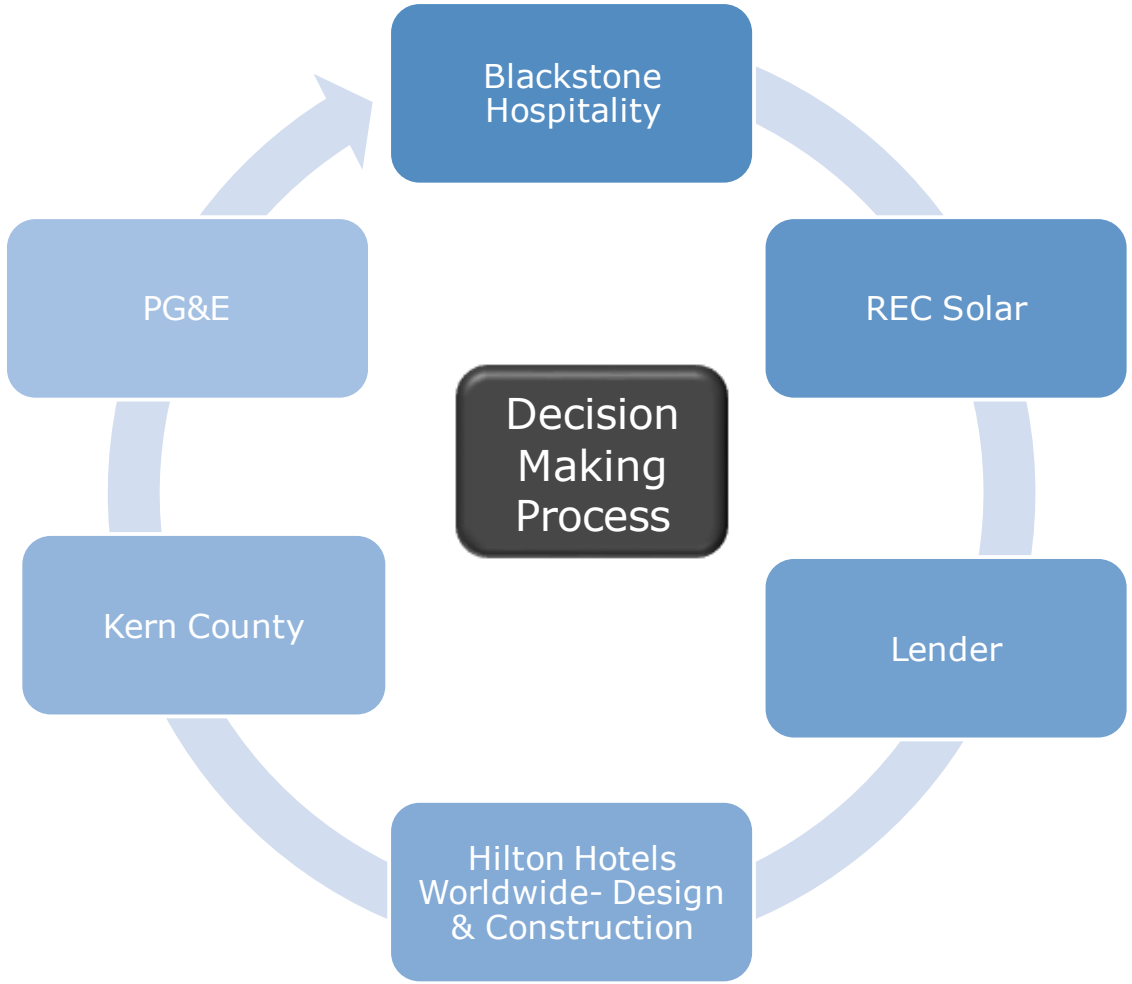
Benefits of Carports

- Construction did not disturb guests or existing operations
- REC did not have to re-configure roof
- Provides extra comfort to guests
- Attracts long-distance EV travelers

Results by the numbers

Solar System Size: 102kW DC
Est. Annual Production: 157,080 kWh
Utility Offset: 37%-44% (combined with energy efficiencies)
Projected Monthly Savings: $7,400-$8,800/month
Simple Payback: 7.75 years
Carport Size: 29 vehicles
EV Charging Bays: 2, expandable to 8

Solar Decision Making Process



Questions to consider

- How much is your bill?
- How much roof space?
- Will the projected system size offset the minimum for the program?

Challenges

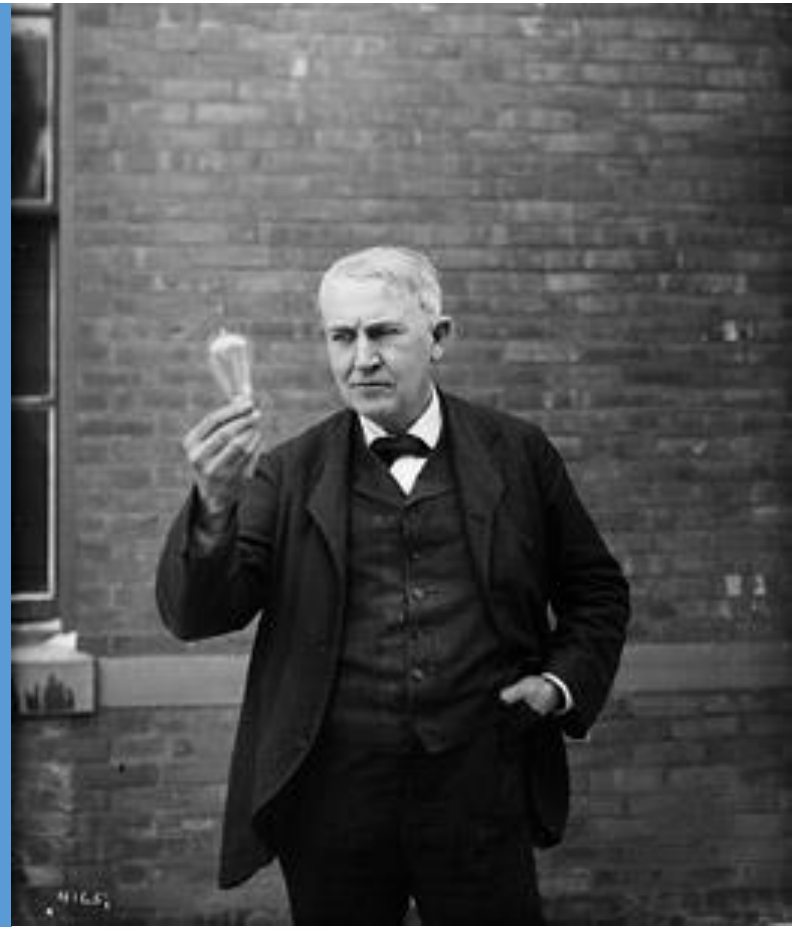
- Identifying a solar partner
- Educating your decision-maker
- Financing

Opportunities

- Green marketing
- ITC tax credit
- Net metering
- Energy savings
- Carport Shade for guests

Lessons Learned

- Ask the right questions
- Don’t disrupt business, create lasting value
  - Customer facing Communication Board/Diagram
- Aim for triple win
  - Customer comfort
  - Clean energy
  - Increased property value with amenity upgrades
- Green branding matters more than you think
  - Attracts sustainably-minded customers
  - Increases customer loyalty
  - Propels market listing with Government contracts



Questions?