OREGON HOUSING & COMMUNITY SERVICES Multifamily Energy Program

All Things Solar for Affordable Multifamily

Date: July 25, 2019

Presenters: Stephen Gribble, Matthew Mills



USING GOTOWEBINAR

Open and close* your **control panel**

Questions will be taken at the end of the presentation.



REGISTER FOR UPCOMING TRAININGS

Thursday, September 26, 2019, 12pm:
 All Electric New Construction | <u>REGISTER NOW</u>

REGISTER

for the monthly newsletter to stay updated on future trainings! OREGON HOUSING & COMMUNITY SERVICES Multifamily Energy Program



Measuring Opportunity Discover Enterprise Community Dectners' Opportunity360 tool which



Training Series Launch

We are excited to launch our 2019 webinar training series, which will occur at noon on the 4th Thursday of

AGENDA

- Solar in Oregon
- Site Selection and Assessment
- Additional Solar Considerations
- Methods For Reducing Project
 Costs and Improving ROI
- Best Practice and Case Study



LEARNING OBJECTIVES

Assess successful multifamily solar projects

Solar financial landscape

2

3

4

Solar + energy efficiency case study

Attendee familiarity with solar

SOLAR IN OREGON

OR-MEP & SOLAR

- While OR-MEP doesn't directly incentivize solar installation, we offer the following:
 - Project support
 - Energy Efficiency incentives
 - Referral to solar incentive programs
 - Trainings (like this one!)
- The Whole Building Pathway provides an estimated energy goal.

Maximize energy efficiency to maximize solar.



WHY YOU SHOULD CONSIDER SOLAR FOR YOUR PROJECTS

- ☑ Solar works in Oregon
- The cost of solar continues to decrease
- Oregon has political and organizational support for solar
- Occupant relief from their energy burden



OREGON'S SOLAR GOALS

March 2016

Renewable Portfolio Standard (RPS) Requires 50% of Oregon's electricity come from renewables by 2040. Governor Kate Brown's Executive Order 17-20 All commercial construction to be Solar Ready by 10/1/2022. Oregon Housing and Community Services (OHCS):
Sustainable Development Standard in PDM updated with Solar Ready & EV ready requirement.

OHCS SOLAR READY REQUIREMENT

Applicability:

- ✓ 3+ attached dwelling units
- ✓ New construction or substantial rehabilitation
- ☑ Receiving OHCS funding

<u>Requirements:</u>

- Conduct a feasibility assessment
- Solar Ready design concept
- Estimation of initial costs & incentives
- Preliminary solar design assumptions + goals
- ☑ Service and fee proposal

Alternate Approach

Comply with Energy Trust of Oregon's Solar or Solar-Ready Program

SITE SELECTION AND ASSESSMENT

TYPICAL SOLAR TEAM MEMBERS





IDEAL BUILDING TYPES FOR MULTIFAMILY SOLAR



MINIMAL SHADING AND OBSTRUCTIONS



SOLAR SITE ASSESSMENTS





GENERAL SITE INSPECTION





ELECTRICAL INSPECTION



Furnished by © HouseMaster





ROOFTOP INSPECTION





STRUCTURAL INSPECTION

Common Roof Truss



ADDITIONAL SOLAR CONSIDERATIONS

THE CHEAPEST POWER IS THAT WHICH YOU DO NOT USE



- Plug Loads
- Behavior

Building science principals

NET METERING



VIRTUAL NET METERING





OWNER VS. TENANT METER OFFSET

A multifamily solar system is generally broken into two parts:

Owner Energy Load

Tenant Energy Load



METHODS FOR REDUCING PROJECT COST AND IMPROVING ROI

LEAN ON LOCAL PROGRAMS



DSIRE: Database of State Incentives for Renewables & Efficiency

ENERGY TRUST OF OREGON

- Non-profit organization that operates throughout Oregon and SW Washington
- Provides incentives for:
 - Single family EB & NC
 - Multifamily EB & NC
 - Solar
 - Industrial & Agricultural



- Resource for detailed guidelines and specifications for solar PV and Solar Ready installations
 - Maintain database of trusted ETO Solar Trade Allies



FEDERAL INVESTMENT TAX CREDIT



- Tax credit that allows for deducting solar investment from federal taxes
- Available for both residential and commercial
- Currently at 30% of system cost, but will tier down:





MODIFIED ACCELERATED COST RECOVERY SYSTEM (MACRS)

| Metric | 35% Tax Rate + 50% Bonus Depreciation (2017) | 21% Tax Rate + 100% Bonus Depreciation (2019) | Difference % |
|--------|-------------------------------------------------------|--------------------------------------------------------|--------------|
| ROI | 11.09% | 11.82% | +6.7% |
| NPV | \$698,815 | \$884,159 | +27% |

OWNERSHIP STRUCTURES AND INCENTIVES

| Power Purchase Agreement (PPA) | Prepaid Power Purchase Agreement | Direct Purchase |
|-------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| Third party owner (TPO) | Third party owner (TPO) | Direct ownership |
| Cost expressed in \$/kWh usually with a guaranteed minimum production | Cost expressed in \$/watt installed | Cost expressed in \$/watt installed |
| Maintenance provided by TPO | Maintenance provided by TPO | Maintenance typically provided by owner unless there is a maintenance contract |
| Ideal for nonprofits or other entities w/ minimal capital and w/o tax liability to take advantage of the Federal ITC | Ideal for nonprofits or other entities w/ capital and w/o tax liability to take advantage of ITC. Some financial benefits over standard PPA | Ideal for entity with capital to spend and enough tax liability to take advantage of the Federal ITC |

OTHER RESOURCES

DSIRE[®]



PVWatts[°] Calculator

DSIRE: Database of State Incentives for Renewables & Efficiency

 Free resource to find incentives and programs that support solar in Oregon and other states **Solar Oregon**

Various solar resources
 + events

PVWatts Calculator

 Tool to project solar PV system energy generation based off site resource

BEST PRACTICE AND CASE STUDY



OPERATIONS & MAINTENANCE BEST PRACTICES

- Proactively address equipment issues
- Regular inspection of equipment components and inverter
- Know your warranty and take advantage of it
- ✓ Tree trimming and panel cleaning
- Have you scheduled a walk through with your contractor?







CASE STUDY: PACIFIC CREST AFFORDABLE HOUSING

- **Project Contacts:**
 - Rob Roy
 - Ben Bergantz
- **Project Goals**
 - Sustainability has to make perfect economic sense.
 - Not about looking good – it is about doing good.





Discover comfortable and affordable living in one of Bend's most sought-after neighborhoods. NorthWest Crossing.

DISCOVERY PARK LODGE



Located next to the historic Hudspeth Ranch, our newest project features stunning views of the Ochoco mountain range.

OUR PROJECTS:

Pacific Crest has completed 5 affordable housing projects in Central Oregon: 2 in Bend, 2 in LaPine, and 1 in Prineville. 2 more in Bend are on the way!





Our second project on Bend's westside offers 54 high-quality senior apartments en route to the Cascade Lakes.

MOUNTAIN LAUREL LODGI



Named for the river running through town, Little Deschutes Lodge phases 1 and 2 provide housing for over 52 low-income seniors in LaPine.

LITTLE DESCHUTES LODGES I & II



CANAL COMMONS

Waiting for that perfect affordable option for families? It's coming soon! Pending funding. Pacific Crest plans to build 48 units near some of Bend's best parks, healthcare, and other amonitios

CANAL COMMONS



315 degrees due Northwest - that's where you'll find our upcoming project designed specifically to serve Bend's workforce. This project is currently under construction and opening late fall 2018.

AZIMUTH 315



CASE STUDY: LITTLE DESCHUTES LODGE



La Pine, OR | 52 units | 32.2 kW PV



CASE STUDY: IRON HORSE LODGE



Prineville, OR | 26 units | 64 kW PV



CASE STUDY: AZIMUTH 315



Bend, OR | 50 units | 106 kW PV



CASE STUDY: CANAL COMMONS





PACIFIC CREST AFFORDABLE HOUSING: TENANT ENERGY CONSUMPTION

- Typical ~ 400% spread in occupant energy consumption
- What to do when occupants take advantage?
 - Used to be able to use "moral persuasion"
 - Now use energy education
 - Energy Monitoring
 - Encourage occupant understanding of reasonable energy consumption range



CASE STUDY: PACIFIC CREST AFFORDABLE HOUSING



http://pacificcrestaffordablehousing.org/

QUESTION BREAK

THANK YOU FOR ATTENDING

Oregon Housing and Community Services Multifamily Energy Program

www.oregonmultifamilyenergy.com

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