

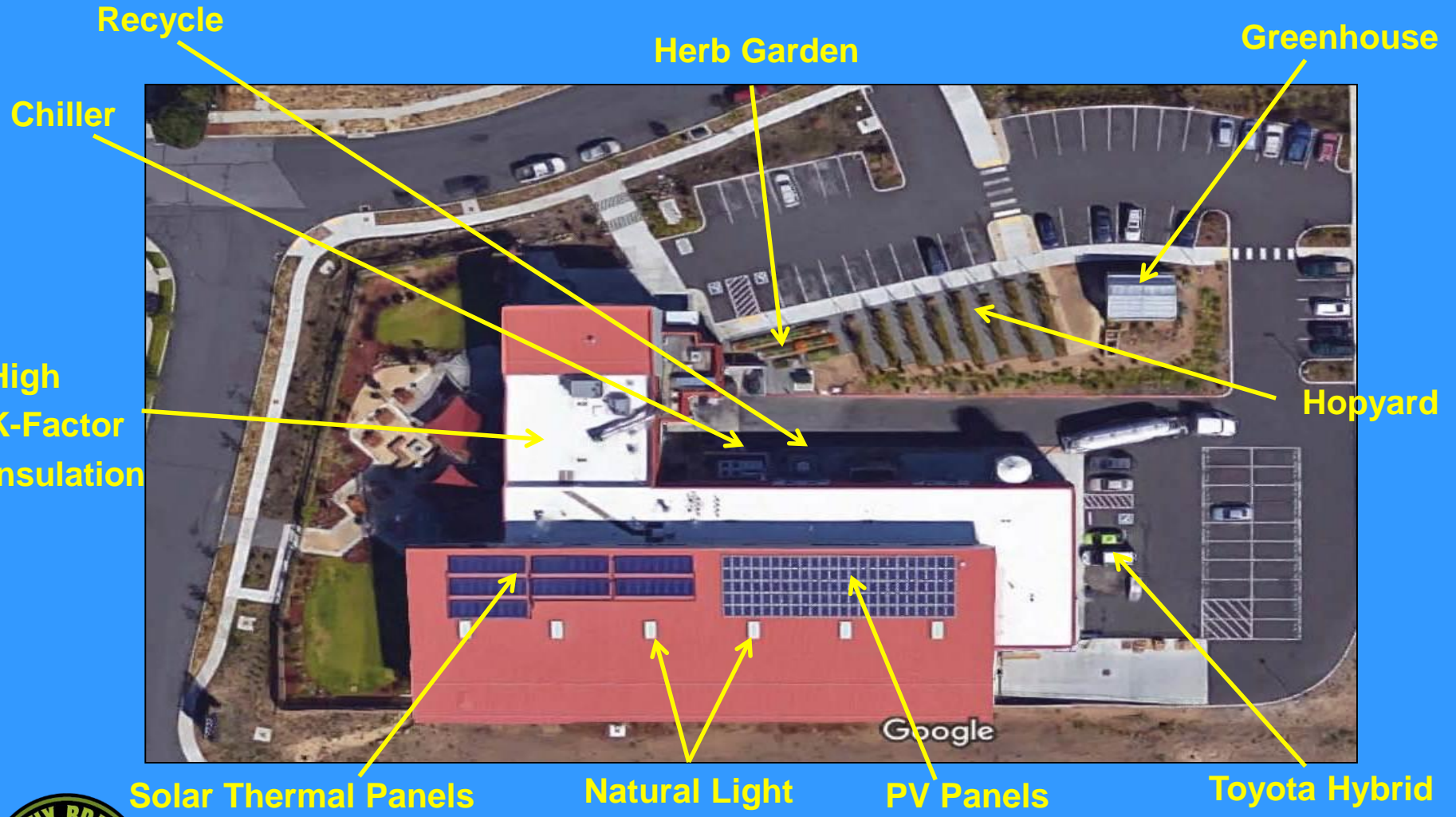
Solar for Businesses: Worthy Brewery Case Study



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Worthy Brewery: Environmentally Committed from the Beginning



Beertopia Part I

Solar Hot Water System



- 56 SunMaxx Solar Hot Water Collectors (Panels) covering 1,450 sq ft
- 2,000 gallon solar hot water storage tank aka "Hot Tub" Preheats water for use in Brewery and Restaurant . 170-180F.
- Est. annual savings in therms: 3,937 (equiv. to 115,000 kWhs of electric power).
- Est. annual saving : \$5,000
- Est. equivalency of pounds of CO2 saved per year: 42,000



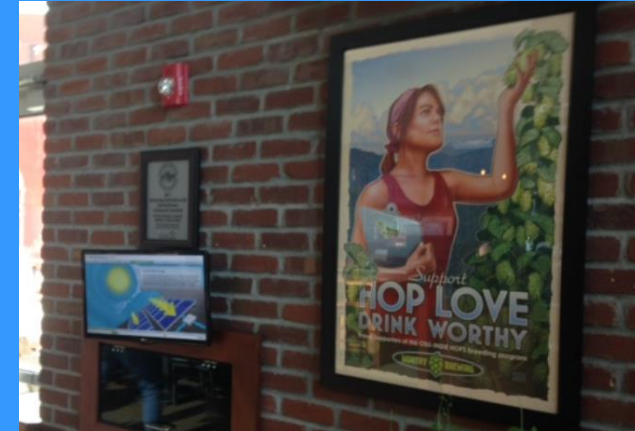
Solar (PV) Powered Beer



- 27.5 kW rooftop, 117 Solar Panels, PV system (2013).
- 12.24 kW, 48 Solar Panel Solar Awning (2016)
- Total PV System: 40 kW
- Estimated PV Production: 50,000 kWhs
- Actual PV Production: 55,000 kWhs (10% overproduction)
- Electric savings annually about \$5,000



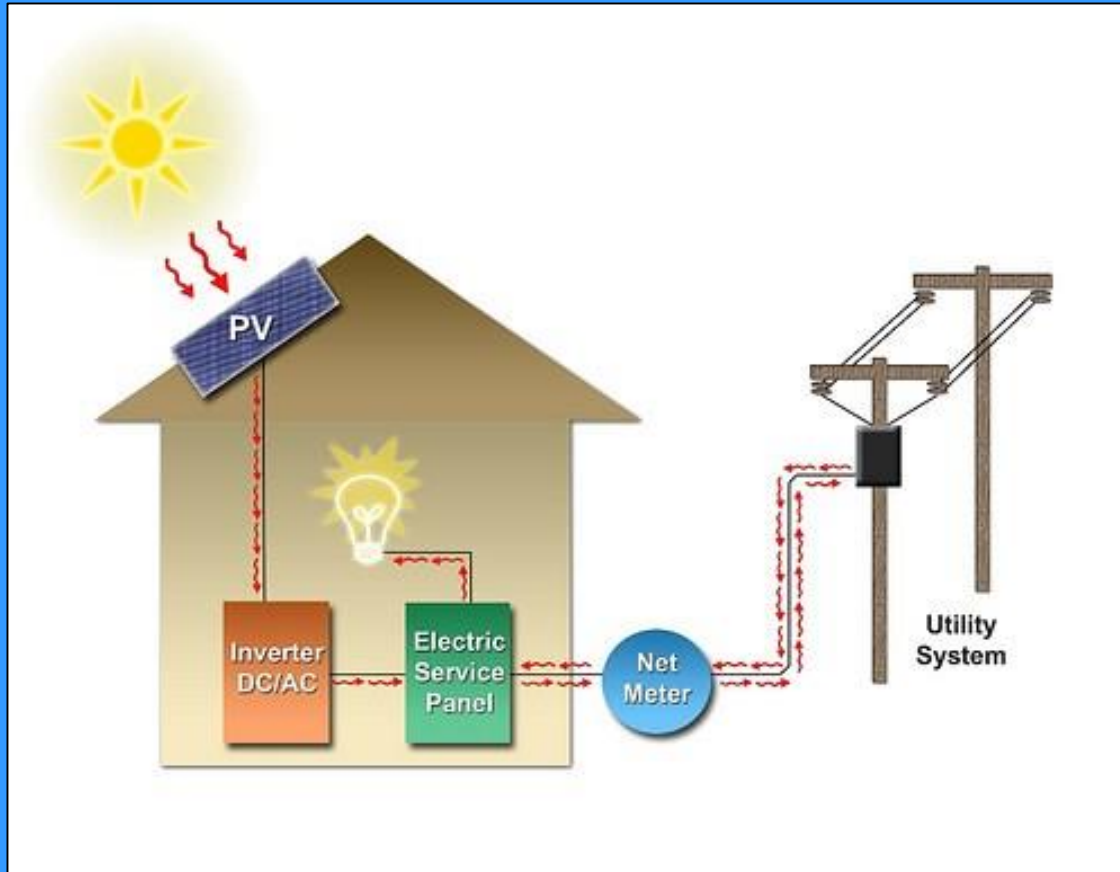
Customer Engagement



- Educational Kiosk at entrance to brewery educates customers on how solar works and promotes the brewery real-time and historical PV Production. Signs and promotions throughout brew pub (“Earth First, Beer Second”)
- Hosts solar workshops and educational events (Solar Oregon, Community Solar, Environmental Center, etc.)
- Dual function cool awning roof and power producer.



How Solar Net Metering Works



Financial Incentives

Commercial

Cash Incentives

- **Energy Trust of Oregon Rebate:** The Energy Trust of Oregon (ETO) cash incentive reduces a solar installation's upfront cost. ETO incentives are available to Pacific Power and PGE customers only. The incentive rates for solar are based on system size and availability, and are not available for all solar installation.

Tax Credits

- **Federal Tax Credit (30% of Customer Price):** The Federal Investment Tax Credit (ITC) is claimed in the fiscal year that the solar installation is placed in service. The federal tax credit is worth 30% of the customer price (after utility rebate), and is currently set to scale down to 10% by 2022.
- **MACRS – Federal Depreciation Benefits:** Accelerated Depreciation benefits may be available for businesses depending on their tax situation. Bonus Depreciation 100% (First Year) Under New Tax Code.
- Please consult your tax preparer.



Worthy's Solar Investment

Solar System Cost

\$294,705.00	Total Project Cost
	* 2012 PV, 2012 Solar Hot Water, 2016 Solar Awning expansion
\$46,500.00	Energy Trust Rebates
\$248,205.00	Customer Price for all three systems

Tax Credit Incentives

\$66,528.02	Estimated MACRS Depreciation
	* Dependent on the tax situation of the individual
\$74,461.50	Federal Investment Tax Credit - 30% of Customer Price
\$107,215.48	Net Cost

Investment

10%	Internal Rate of Return (25-year)
9	Simple Payback in Years
\$434,324.00	25-year Energy Savings



ROI? Does it pencil out?

Year	Customer Price	Depreciation Benefits	30% Federal Tax Credit	Estimated Energy Savings	Annual Savings	Total Savings
0	\$ (248,205)	\$ -	\$ -	\$ -	\$ (248,205)	\$ (248,205)
1		\$ 7,385	\$ 74,462	\$ 10,098	\$ 91,945	\$ (156,260)
2		\$ 23,633		\$ 10,526	\$ 34,159	\$ (122,101)
3		\$ 14,180		\$ 10,972	\$ 25,152	\$ (96,948)
4		\$ 8,538		\$ 11,437	\$ 19,975	\$ (76,974)
5		\$ 8,538		\$ 11,922	\$ 20,460	\$ (56,514)
6		\$ 4,254		\$ 12,427	\$ 16,681	\$ (39,832)
7				\$ 12,954	\$ 12,954	\$ (26,878)
8				\$ 13,503	\$ 13,503	\$ (13,375)
9				\$ 14,076	\$ 14,076	\$ 701
10				\$ 14,672	\$ 14,672	\$ 15,373

Yes.



Commercial Solar in the U.S.

2,562 megawatts (MW)
of commercial solar projects in the U.S.

**More than 4,000
companies**

Have installed a solar system on their
businesses, across nearly 7,400 locations

Top 10 Corporate Solar Users

1. Target	203.48 MW
2. Walmart	149.43 MW
3. Prologis	120.72 MW
4. Apple	101.40 MW
5. Kohl's	51.49 MW
6. Costco	50.75 MW
7. General Growth Properties	50.21 MW
8. IKEA	44.85 MW
9. Macy's	38.98 MW
10. Amazon	33.60 MW

- If it didn't pencil, they wouldn't do it.
- SEIA-Solar Energy Industries of America



Sample 40 kW Financial Analysis for PPL Customers in Central Oregon 2018

System Cost	
\$112,000	Total Project Cost
\$14,770	Energy Trust Rebate (Current rebate, subject to change)
\$97,230	Customer Price
Tax Credit Incentives *Based on Current Tax Codes	
\$17,356	MACRS- Federal Depreciation Benefits
\$29,169	Federal Investment Tax Credit - 30% of Customer Price
\$50,705	Net Cost
Investment	
12%	Internal Rate of Return (25-year)
\$205,194	25 year energy savings
8	Simple Payback in Years

Year	Customer Price	Estimated Federal Depreciation Benefits*	30% Federal Tax Credit	Energy Savings	Annual Savings	Total Savings
0	\$ (97,230)		\$ -	\$ -	\$ (97,230)	\$ (97,230)
1		\$ 17,356	\$ 29,169	\$ 6,019	\$ 52,543	\$ (44,687)
2				\$ 6,168	\$ 6,168	\$ (38,518)
3				\$ 6,322	\$ 6,322	\$ (32,196)
4				\$ 6,479	\$ 6,479	\$ (25,717)
5				\$ 6,640	\$ 6,640	\$ (19,078)
6				\$ 6,805	\$ 6,805	\$ (12,273)
7				\$ 6,974	\$ 6,974	\$ (5,299)
8				\$ 7,147	\$ 7,147	\$ 1,849
9				\$ 7,325	\$ 7,325	\$ 9,173
10				\$ 7,507	\$ 7,507	\$ 16,680

Environmental Benefits of the two Solar Electric (PV) systems combined

57,069 Estimated pounds of CO2 saved (year 1)

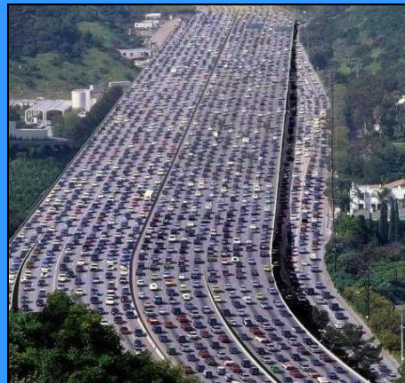
60.3 Estimated pounds of SO2 saved (year 1)

83.6 Estimated pounds of NOX saved (year 1)

68,462 Equivalent miles of reduced driving (year 1)

4.4 Equivalent acres of trees planted (year 1)

! All systems combined, Worthy Brewing energy efforts equivalent to 100,000 pounds of CO2 and 8 acres of trees planted per year.



60% of Pacific Power electricity generated by coal burning power plants.



Leave the World Better than you found it.

Source: Energy Trust of Oregon

Why Go Solar?



- **ROI! Simply Pays Off.**
- **Financial incentives, rebates, and savings**
- **Public Relations**
- **Environmental Stewardship and Leadership**
- **Supports Local Economy and Jobs**



Questions?

