

SOLAR POWER
Best ROI and IRR



Universal Energy Parks

UEP CASE STUDY

Whitewater Ranch Evaluation



UEP

CLEAN ENERGY
STARTS HERE

WHITewater RANCh CLEAN ENERGY POTENTIAL

90255 Fish Hatchery Rd, WALTERVILLE, OR 97489, USA

Whitewater Ranch Barn Roof Solar Potential

Whitewater Ranch Ground Mount Solar Potential

Goose Creek Hydropower Potential

Trout Creek Hydropower Potential

KORWAL04 Weather Station Wind Potential

Whitewater Ranch
Property Boundary

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Google earth

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SOLAR POWER



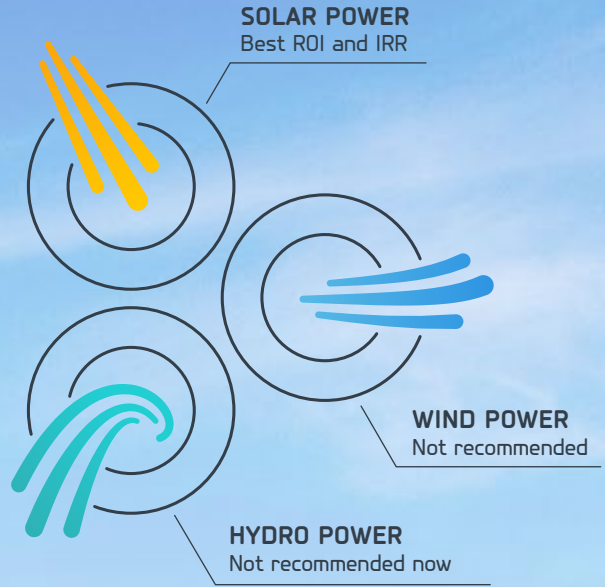
RECOMMENDATION

CONSIDER PURSUING SOLAR POWER DEPLOYMENT OPTIONS BASED ON PRODUCTION, FINANCIAL AND INCENTIVE COMPARISONS

Solar Power offers the best Return On Investment (ROI) and Internal Rate of Return (IRR) of the three clean energy systems evaluated for Whitewater Ranch.

- ✓ If Whitewater Ranch can use an Investment Tax Credit (ITC) and the depreciation of capital expenses...¹
- ✓ And if a solar solution ROI and IRR meet or exceed internal requirements for capital expenditures...
- ✓ Then UEP recommends developing a solar conversion solution to replace a percentage of Whitewater Ranch's electric power usage.

¹ Please confirm with your tax advisor that your company can use investment tax credit and depreciation.



SOLAR OPTIONS (ADDITIONAL SIZE OPTIONS AVAILABLE)



OPTION 1 11 kW SYSTEM

LET'S GIVE THIS THING A TRY

- Covers 8% of Whitewater Ranch annual electric power usage
- Little or no financing may be required
- **FUTURE:** With highly profitable years, may choose additional installations
- **FUTURE DOWNSIDE:** Utility incentives diminish each year
- **FUTURE DOWNSIDE:** Investment Tax Credit (ITC) scheduled to decrease from 30% to 10% after 12/31/2016

OPTION 2 34 kW SYSTEM QUICKEST PAYBACK

- Covers 24% of Whitewater Ranch annual electric power usage
- Maximize incentives
- Maximize ROI and IRR
- Mid-level expense
- May need financing
- **FUTURE:** With highly profitable years, may choose additional installations
- **FUTURE DOWNSIDE:** Utility incentives diminish each year
- **FUTURE DOWNSIDE:** Investment Tax Credit (ITC) scheduled to decrease from 30% to 10% after 12/31/2016

OPTION 3 126 kW SYSTEM DO IT ALL AT ONE TIME

- Covers 90% of Whitewater Ranch annual electric power usage (100% is not recommended because there is no reimbursement for overproduction)
- Best System Discount from Installer
- Best protection against inflation and future carbon (CO2) expense premiums
- May need financing
- **FUTURE:** Additional installations only with large increase in electricity usage, or a Power Purchase Agreement (PPA) placed with utility or other customers



SOLAR POWER

GROUND MOUNTED OPTION

Ground Mounted Annual Production

11 kW SYSTEM

12,386 kWh

5.0% Installer Discount
\$0

34 kW SYSTEM

38,892 kWh

20.0% Installer Discount
\$0

126 kW SYSTEM

143,430 kWh

30% Installer Discount
2 Utility Upgrades \$20,000

Upgrades Required

Installed Cost / Watt

\$4.74

\$3.99

\$3.65

System Cost Before Incentives

\$51,775²

\$136,903²

\$461,773²

Federal Investment Tax Credit (ITC)

\$15,532

\$41,071

\$138,532

EWEB Grant

\$4,776

\$14,996

\$15,000

Federal & State Depreciation Benefits

\$20,063

\$53,050

\$178,937

Total Tax Credit & Incentive

\$40,371

\$109,117

\$332,469

First Year Cash Out

\$26,773

\$68,087

\$264,565

System Cost after Tax Credits & Incentives

\$11,404

\$27,786

\$129,304

First (Full) Year Energy Savings

\$1,362

\$4,278

\$15,777

Financials for Project Comparison

No Financing Used in Calculations

Net Cash with 3% (~CPI) Rate Inflation	Year 25 \$37,991	Year 25 \$127,113	Year 25 \$441,614
IRR with 3% (~CPI) Rate Inflation	11.7%	14.4%	12.5%
Payback with 3% (CPI) Rate Inflation	7.24 Years	5.65 Years	7.16 Years
Net Cash with 6% Rate Inflation	Year 25 \$63,067	Year 25 \$205,853	Year 25 \$731,999
IRR with 6% Rate Inflation	14.4%	17.1%	15.3%
Payback with 6% Rate Inflation	6.62 Years	5.39 Years	6.55 Years
Discounted Installation Savings	\$2,725	\$34,226	\$189,331
First Year ROI	5.1%	6.3%	6.0%
Simple ROI (post payback, no Inflation)	11.9%	15.4%	12.2%

² Actual prices may vary based on Installer pricing.

HYDRO POWER

RECOMMENDATION

WITHOUT A POWER PURCHASE AGREEMENT IN PLACE HYDROPOWER IS NOT RECOMMEND AT THIS TIME

- Goose Creek has potential for annual production of 702,000 kWh from an estimated 20.8 gallons/second flow and a potential head (vertical drop) of 410 feet. If additional evaluation is of interest, the following is recommended:
 - Request that the Oregon Department of Fish and Wildlife conduct a stun test to determine whether it is a spawning creek for salmon and steelhead trout.
 - Install a flow meter and data logger to track flow versus time.
- Trout Creek is a spawning creek for salmon and steelhead trout. New hydropower development is not allowed in salmon and steelhead trout spawning rivers and creeks – Oregon Department of Fish and Wildlife.

WIND POWER

RECOMMENDATION

DO NOT PURSUE WIND POWER ON WHITEWATER RANCH PROPERTY

- Four months evaluated with anemometer in current location – January 2014 through April 2014.
- Only 30 hours with wind speed above cut-in (start-up) speed of 6.7 mph. The 30 hours was at an average of 8.7 mph. Less than 1% of the name plate (turbine rated output) value.
- No other property placement.

Contact us to get started with your free, no-commitment evaluation for a clean energy solution that's right for you.