Sustainable Northwest

Prepared by
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REQUEST FOR PROPOSALS
FOR
GEOTECHNICAL SERVICES

Proposal due 5 pm PST, May 5, 2017

Contents

INVITATION

Sustainable Northwest is seeking contractor services for a three-phase geotechnical Investigation. Requested services include first, a preliminary assessment of the site's subsurface conditions; second, recommendations for design and installation of a solar facility on the site and lastly, a geotechnical report that summarizes findings and recommendations to be used for a solar project development.

Sustainable Northwest is soliciting this Request for Proposals ("RFP") on behalf of The Klamath Tribes. Contractor will report directly to Sustainable Northwest.

INTRODUCTION

The Bureau of Indian Affairs Division of Energy and Mineral Development awarded The Klamath Tribes funds to complete an inventory of available lands and pre-development studies for solar development on Tribal lands.

The Klamath Tribes retained Sustainable Northwest as Energy and Mineral Development Program (EMDP) lead to provide a detailed technical assessment of proposed solar installation sites including a report outlining the findings of the feasibility studies and an associated action plan, per the Department of Interior Bureau of Indian Affairs Grant Program (BIA-15-FA-0001). As part of this assessment, Sustainable Northwest is requesting technical services to provide geotechnical analysis at the Tringle Property described below.

A geotechnical study, which will include wetland and groundwater resource evaluation, will be used in conjunction with the design and construction of a 384 KW ground mount solar installation. The project will aggregate the load of four buildings/meters in to two distinct projects on one site (see Appendix A, attached site map). Note, two of the four buildings are on the southern side of Chiloquin Boulevard. The proposed installation is on the north side of Chiloquin Boulevard.

BACKGROUND

The mission of the Klamath Tribes is to protect, preserve, and enhance the spiritual, cultural, and physical values and resources of the Klamath, Modoc, and Yahooskin peoples.

The Klamath people have provided stewardship for the environmental resources of the Klamath Basin since time immemorial. In 1864, the Klamath Tribes entered into a treaty with the United States, agreeing to cede over 20 million acres of ancestral homelands to the United States in exchange for a reservation of 2.2 million acres to hold exclusively. The Tribal-reserved lands quickly diminished with fraudulent reservation boundary surveys and allotment to individuals.

In 1954, the United States Congress, without the authorization of the Klamath people, passed the Klamath Termination Act that provided for the disposal of the remaining reservation lands. Congress restored the Tribes' federal recognition in 1986, but did not restore ownership of any of the lost lands to the Tribes. The Tribes do maintain treaty rights and regulatory responsibilities within the reservation boundary, including water rights to support treaty resources.

Solar is a clean, renewable energy option that is increasingly considered the energy choice of the future. [1] The Klamath Tribes are located in South-Central Oregon, one of the best solar resource areas in the Pacific Northwest.[2] The Tribes want to utilize this widely available renewable resource by pursuing solar energy as their primary source of energy. Solar generation can greatly offset the electricity demands of single family homes, multi-family units, administration buildings, and business operations in the community of Chiloquin.

SITE: Triangle Property

Overview

The Triangle property is on the Klamath Indian Reservation, held in Tribal trust, and located across the road from Tribal Government Administration in Chiloquin, on 8 acres of land (See Appendix A). A solar generation facility at this location would seek to aggregate the meters and offset the energy load at the Tribal Administrative Building, the Elderly Congregate Building, the Health and Wellness Center, and the Child Care Center (See Appendices C and D, Helioscope 184kW and Helioscope 200kW). In order to accommodate meter aggregation criteria[3], the proposed project is proposed to be broken into two smaller projects, both located on the Triangle property. "Triangle I" (184kW) would meter against the Health and Wellness Center and the Child Care Center. "Triangle II" (200kW) would meter against the Tribal Administrative Building and the Elderly Congregate Building.

Ecological, Cultural, and Archaeological Summary

Sustainable Northwest determined the Triangle Property to have the least adverse impacts of all reviewed sites. Additionally, Sustainable Northwest worked with Tribal Culture and Heritage and Planning Departments, State Historic Preservation Office, and Bureau of Indian Affairs archeological staff to identify the location within the Triangle property with the least cultural and archaeological sensitivities. Surface and sub-surface studies were conducted in the 2000's by Bureau of Indian Affairs archeologist Chuck James, and a Cultural Resource Survey was done

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[1] http://www.nrel.gov/gis/images/eere_pv/national_photovoltaic_2012-01.jpg

[2] http://en.openei.org/w/index.php?title=File:NREL-eere-csp-h-oregon.pdf

[3] Chiloquin Boulevard serves as a barrier between the solar generation facility and two of the four meters that will be aggregated to offset the load of the 384 KW installation. The recommendation from the servicing utility was to separate the project into two adjacent facilities on the property. One would aggregate the two meters on the west side, ('Triangle I' - Health and Wellness Center and Child Care Center, 186kW) and the second would aggregate the two meters on the east side, ('Triangle II" - Tribal Administrative Building and the Elderly Congregate Building, 198kW.) Under road boring Trenching will be required to access the meters east of the road.

in 2008 by Matt Kreitzer and Perry Chocktoot. Much of this data is proprietary and unavailable for public distribution. However, this location (adjacent to the existing Health and Wellness Center and along the southern and eastern portions of the property) has been recommended by the Klamath Tribal Cultural and Heritage Department. **It should be noted, Cultural Resource Technicians will be required to monitor geotechnical analysis conducted on this site.** Sustainable Northwest will pay the incurred monitoring costs of Klamath Tribal services provided by the Culture and Heritage Department.[4]

There are no known major environmental or ecological impacts should development be pursued. The south and eastern portions of the property are generally free of large stands of trees, mostly containing brush and other low-value vegetation. GIS data collected from state and federal agencies show low to no impact on wetland or other wildlife habitat, and is not designated as a Conservation Opportunity Area (See Appendix B, Triangle Wetland). The property is also located outside the FEMA designated 100-year floodplain plan. If federal dollars are used for development, an Environmental Assessment will be required.

SCOPE OF WORK

The study will provide information and geotechnical engineering recommendations related to the following considerations: subsurface soil conditions, presence or vicinity to wetlands, necessary earthwork, ground mount foundation design and construction, seismic considerations, and under road boring considerations.

The overall geotechnical fee proposal will represent a three phase work plan:

1. Assessment of subsurface conditions

- Site
- Geology
- Typical Subsurface Profile
- Seismic Shear Wave Results
- Wetlands Mapping and Identification
- Faulting and Estimated Ground Motions

2. Recommendations for design and construction

- Geotechnical Considerations
- Earthwork
- Site Preparation

[4] A Cultural Resource Technician must accompany each piece of equipment used during excavation. Technicians cost $20-$25 an hour. The Contractor proposer must estimate approximate time needed for survey work.

- Subgrade Preparation
- Fill Materials and Placement
- Compaction Requirements
- Grading and Drainage
- Corrosion Potential
- Construction Considerations
- Post construction storm water runoff

Foundations

- Structures Driven Piles Design Recommendations (soil/pile interaction -explore the solar site with 6 - 25-foot-deep borings and standard penetration test)
- Construction Considerations

Interconnection

- Under road boring design recommendation
- Under road boring permitting considerations (See footnote 3., page 4)

3. Deliverable: Report of findings and recommendations

- Written report
- Associated maps and technical documents
- In person presentation

BACKGROUND, EXPERIENCE AND CAPABILITIES

Background Information

Provide general information to Sustainable Northwest (SNW), including a brief history of the firm and the number of years in business. The proposal should include resumes, relevant project experience, availability, current workload and office location of all key personnel. (See Proposal Submission section below).

Project experience

Project experience should include a comprehensive list of all relevant geotechnical assessments completed with special emphasis given to projects related to solar energy development and other geotechnical work in the Klamath region.

References

The Contractor should include references related to relevant work experience.

Schedule of Rates and Fees

The Contractor shall describe how professional fees will be calculated, based on level of effort, for each of the tasks. This summary should include any services not itemized, but deemed necessary by the Contractor. In addition, to a summary of Contractor bid, Sustainable Northwest requests an approximate number of hours and staff that will be required to serve as monitors from Klamath Tribes Cultural and Heritage Department which will be required to oversee any site work. Sustainable Northwest will pay these incurred costs but will be dependent on Contractor to provide an estimated amount of hours that will be needed for on-site monitoring.

Inquiries

All enquiries regarding this Request for Proposal (RFP) must be made in writing by fax or e-mail and addressed to:

Lee Rahr
Energy Program Director, Sustainable Northwest (SNW)
812 SW Washington, Suite 700
Portland Oregon 97205
lrahr@sustainablenorthwest.org

Such enquiries should be delivered by May 5, 2017 5:00pm PST so that questions and answers can be sent to all Contractors as an addendum.

PROPOSAL SUBMISSION

A complete proposal must include the following materials:

1. A cover letter describing the applicant's qualifications and relevant experience.
2. A proposal describing how tasks in the scope of work will be carried out.
3. A budget estimate for the project scope of work including time and travel to orally present findings to Sustainable Northwest and Tribal staff.
4. Resumes of all consultants and contractors involved in the project.
5. Names, phone numbers and contact information of three references or clients during the last 18 months

To be considered, electronic copies of Proposals should be sent to Lee Rahr at lrahr@sustainablenorthwest.org Hard copies of Proposals will also be accepted, must be clearly marked "RFP: Geotechnical Services" and be received at address above.

EVALUATION

The following weighting and points will be assigned to the proposal for evaluation purposes.

Section	Points Available
Management	
Proposal	30
Experience of the Consultant	40
References	10
Costs	
Cost Proposal	20
Total Available Points	100

CONTRACT

Sustainable Northwest (SNW) will review all proposals for completeness. SNW may request that a bidder provide additional information or clarification to its initial proposal. Proposals will be evaluated, in the sole discretion of SNW based on pricing as well as other considerations including but not limited to location, relevant experience, and deliverability. This RFP contains general guidelines and requirements for developing and submitting proposals. Nothing herein shall be construed to bind SNW unless and until a contract with a bidder has been successfully negotiated and executed, and is effective. As noted under Site: Triangle Property, Sustainable Northwest will pay the incurred monitoring costs of Klamath Tribal services recommended by the Culture and Heritage Department.

A contract is anticipated to run from approximately June 1, 2017 to July 31, 2017. Sustainable Northwest reserves the right to accept or reject any or all proposals. This RFP does not obligate the Sustainable Northwest to issue a contract.

SCHEDULE

Release RFP April 19, 2017

Proposal due 5 pm PST, May 5, 2017

Select contractor by May 12, 2017

GENERAL CONDITIONS

Cost of Proposal

Preparation and submission of a Proposal in response to this RFP is voluntary and any costs associated with Proposal preparation, submission, meetings, negotiations or discussions with SNW must be borne by the Contractor submitting the Proposal.

No Claim

Sustainable Northwest (SNW) will not be liable to any Contractor for any claims, whether for costs, expenses, losses or damages, or loss of anticipated profits, or for any other matter whatsoever, incurred by the Contractor in preparing and submitting a Proposal, or participating in negotiations for a Contract, or other activity related to or arising out of this RFP. Except as expressly and specifically permitted in this RFP, no Contractor shall have any claim for any compensation of any kind whatsoever as a result of participating in this RFP and by submitting a Proposal each Contractor shall be deemed to have agreed that it has no claim.

Contractor's Qualifications

In submitting a Proposal, the Contractor acknowledges and agrees that it has read, understood and agrees to all terms and conditions described in the RFP and that it has the necessary experience, skills and ability to effectively provide the Services.

Acceptance of Proposal

SNW reserves the right to accept or reject any or all Proposals received in response to this RFP. SNW reserves the right to conduct personal interviews with selected Contractors and contact the references provided. Withdrawal Contractors may withdraw their Proposal at any time prior to acceptance.

No Binding Contract

Sustainable Northwest may, after reviewing the Proposals received, enter into discussions with one or more of the Contractors, without such discussion in any way creating a binding contract between SNW and any Contractor. There will be no binding agreement with SNW until a formal contract with negotiated terms has been signed by both the SNW and a Contractor.

Solicitation of SNW Staff and Assembly Members Prior to the Closing Date

Contractors should not establish contact with anyone inside the SNW regarding this RFP, other than the representative(s). Failure to abide by this requirement could be grounds for rejection of your Proposal.

Confidentiality

Any information acquired about the Klamath Tribes during this process must not be disclosed unless authorized by Sustainable Northwest, and this obligation will survive the termination of the RFP process.

No Conflict of Interest

By submitting a Proposal, the Contractor declares that it has no pecuniary interest in the business of any third party that would cause a conflict of interest or be seen to cause a conflict of interest in carrying out the Services.

ABOUT SUSTAINABLE NORTHWEST

Sustainable Northwest brings people, ideas, and innovation together so that nature, local economies, and rural communities can thrive. Founded in 1994 in response to the environment vs. jobs crisis that plagued the Pacific Northwest at the time, Sustainable Northwest fills a unique niche among conservation non-profits. We work side-by-side with rural communities to bring diverse interests together to listen and learn, find common ground, and craft equitable and durable solutions that build ecological, economic, and cultural resilience. Over the past 20 years, we have engaged with communities deemed by others as not ready or too hostile, and empowered them to join together, balance competing needs, and accelerate efforts to heal their natural systems and socioeconomic conditions for the benefit of future generations.

APPENDICES

Appendix A: Triangle Site Map

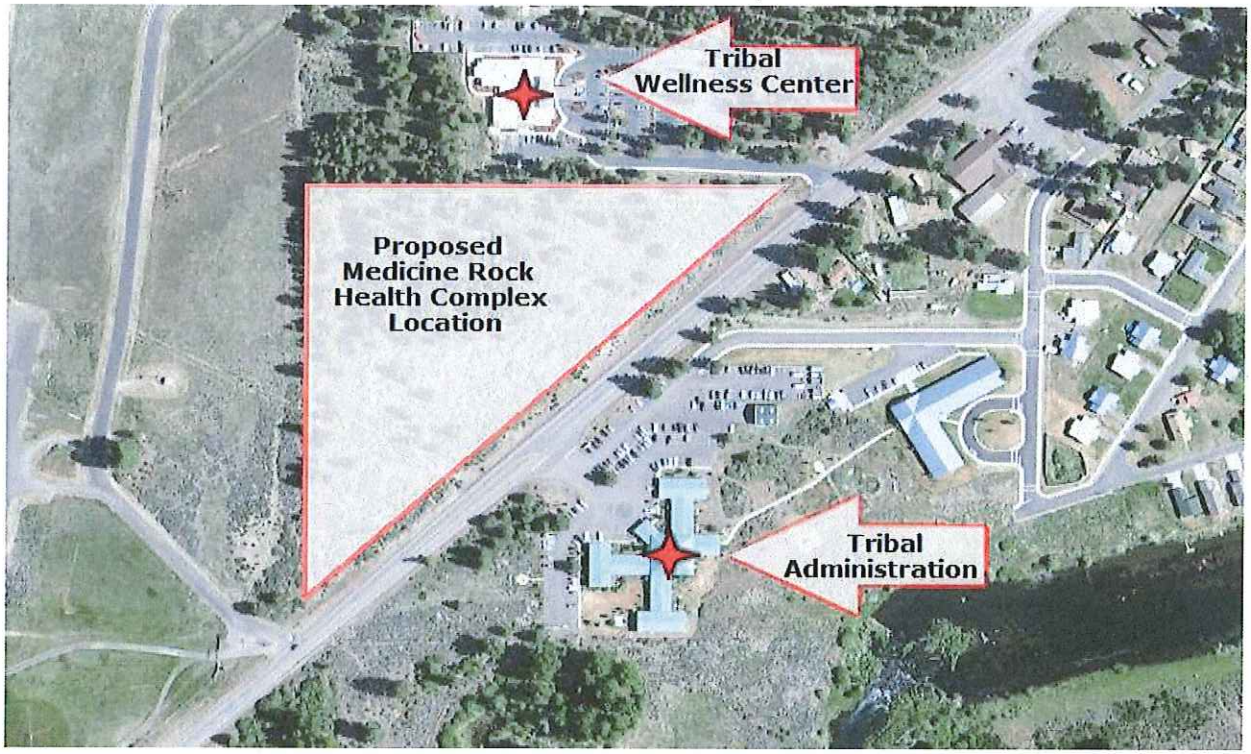
Appendix B: Triangle Wetlands Map

Appendix C: Helioscope 184 kW

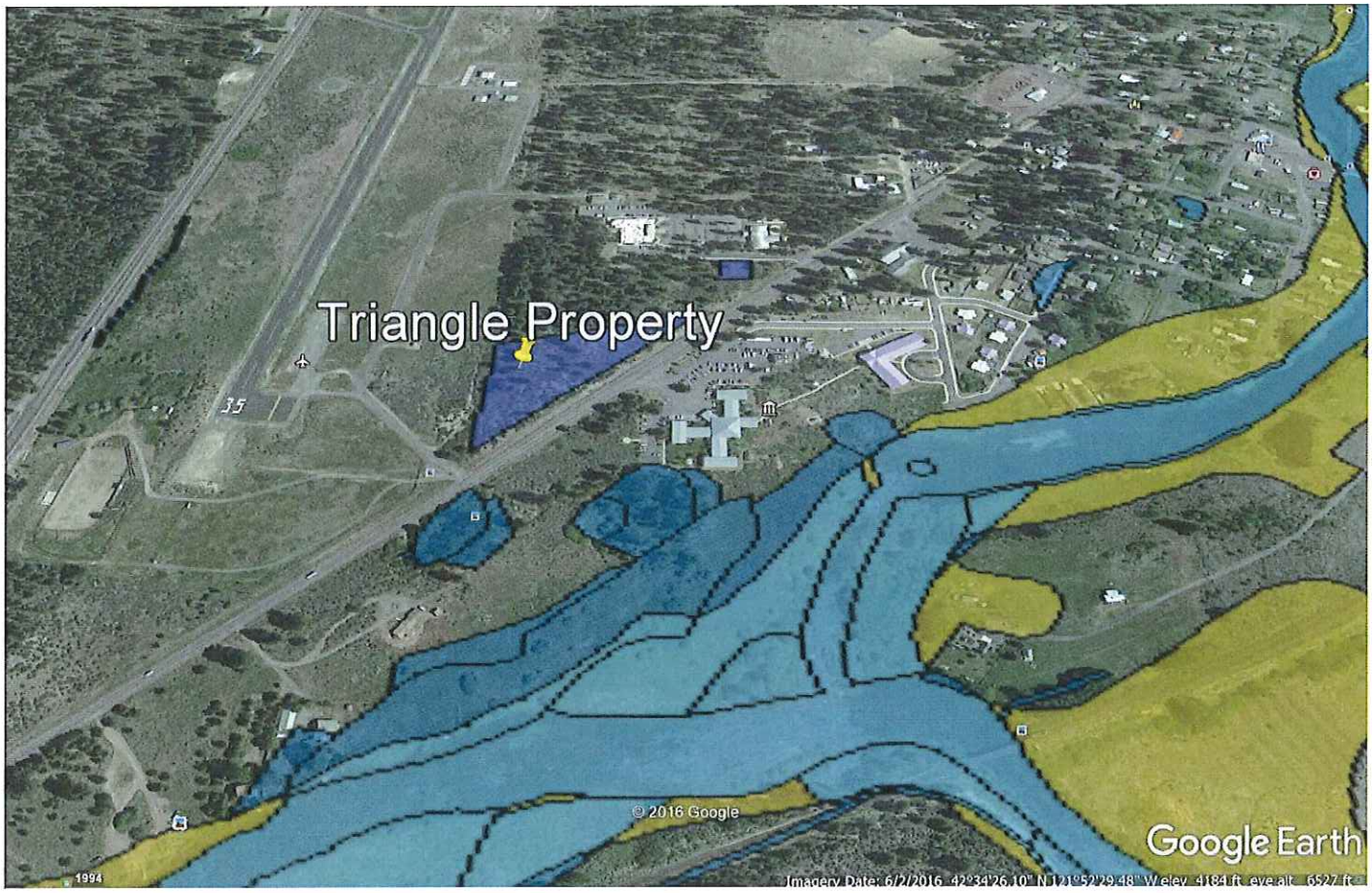
Appendix D: Helioscope 200 kW

Appendix A:
Triangle Site Map

Note: Triangle site below noted as Medicine Rock Health Complex Location



Appendix D:
Triangle Wetlands Map



This map contains three data sets:
Data Set: *Proposed Generation Facility Sites – Triangle Property identified by the Klamath Tribe.* ***Highlighted in Purple***
Data Set: *2012 100-year Floodplains –* ***Highlighted in Yellow***
The second data set contains 100-year flood plains as identified by FEMA from 2012.Data was retrieved from the Oregon Explorer Map Viewer from the Hazards -> Flood Hazards -> Floodplain: Non-Regulatory data set.
Data Source: http://tools.oregonexplorer.info/oe_map_viewer_2_0/viewer.html?Viewer=OE
Data Set: *Oregon Wetlands –* ***Highlighted in Blue***
The third data set contains wetland data compiled in 2009 The Oregon Wetlands Cover is a compilation of polygon data from numerous sources, and represents the most comprehensive dataset available for the location and composition of the state's wetlands. It uses as a base all available digital data from the National Wetland Inventory (NWI; U.S. Fish and Wildlife Service, USFWS), NWI mapping (Oregon Natural Heritage Information Center and The Wetlands Conservancy, ORNHIC and TWC), mapping from Local Wetland Inventories (LWIs; Department of State Lands, DSL), wetlands along state highways (Oregon Department of Transportation, ODOT), and mapping of individual sites by a variety of federal, state, academic, and nonprofit sources.
Data Source: http://tools.oregonexplorer.info/oe_map_viewer_2_0/viewer.html?Viewer=OE

Array 1 Sustainable NW Chiloquin, 42.575,-121.876

Report

Project Name	Sustainable NW Chiloquin
Project Address	42.575,-121.876
Prepared By	Renewable Energy Associates ryan@renewableassociates.com

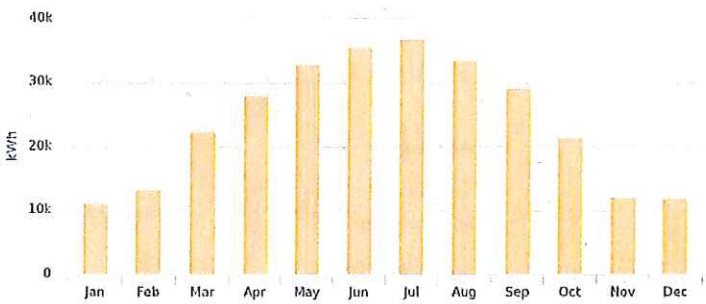
RENEWABLE Energy Associates

System Metrics

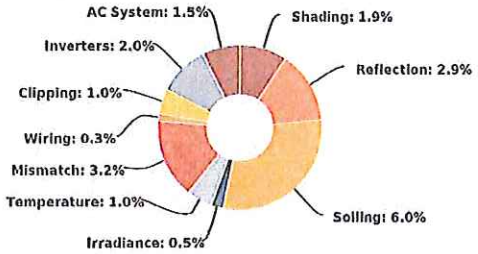
Design	Array 1
Module DC Nameplate	183.5 kW
Inverter AC Nameplate	150.0 kW Load Ratio: 1.22
Annual Production	288.3 MWh
Performance Ratio	81.4%
kWh/kWp	1,570.9
Weather Dataset	TMY, 10km Grid (42.55,-121.85), NREL (prospector)
Simulator Version	c9e3a32f98-993dad56e2-a46067c7d4-3c2d609189

Project Location

Monthly Production



Sources of System Loss



Annual Production

	Description	Output	% Delta
Irradiance (kWh/m²)	Annual Global Horizontal Irradiance	1,720.4	
	POA Irradiance	1,929.5	12.2%
	Shaded Irradiance	1,893.4	-1.9%
	Irradiance after Reflection	1,839.1	-2.9%
	Irradiance after Soiling	1,728.7	-6.0%
	Total Collector Irradiance	**1,728.7**	**0.0%**
Energy (kWh)	Nameplate	317,271.4	
	Output at Irradiance Levels	315,766.0	-0.5%
	Output at Cell Temperature Derate	312,537.3	-1.0%
	Output After Mismatch	302,644.8	-3.2%
	Optimal DC Output	301,733.7	-0.3%
	Constrained DC Output	298,747.1	-1.0%
	Inverter Output	292,713.0	-2.0%
	Energy to Grid	**288,322.0**	**-1.5%**
Temperature Metrics			
	Avg. Operating Ambient Temp		9.2 °C
	Avg. Operating Cell Temp		18.4 °C
Simulation Metrics			
	Operating Hours		4695
	Solved Hours		4695

Condition Set

Description	Condition Set 1
Weather Dataset	TMY, 10km Grid (42.55,-121.85), NREL (prospector)
Solar Angle Location	Meteo Lat/Lng
Transposition Model	Perez Model
Temperature Model	Sandia Model

Temperature Model Parameters	Rack Type	a	b	Temperature Delta
	Fixed Tilt	-3.56	-0.075	3°C
	Flush Mount	-2.81	-0.0455	0°C
	East-West	-3.56	-0.075	3°C

Soiling (%)	J	F	M	A	M	J	J	A	S	O	N	D
	6	6	6	6	6	6	6	6	6	6	6	6

Irradiation Variance	5%
Cell Temperature Spread	4° C
Module Binning Range	-2.5% to 2.5%
AC System Derate	1.50%

Module Characterizations	Module	Characterization
	Sunmodule SW 345 XL mono (SolarWorld)	Manufacturer R&D, PAN

Component Characterizations	Device	Characterization
	PVI 50TL (Solectria)	Spec Sheet

Array 2 Sustainable NW Chiloquin, 42.575,-121.876

Report

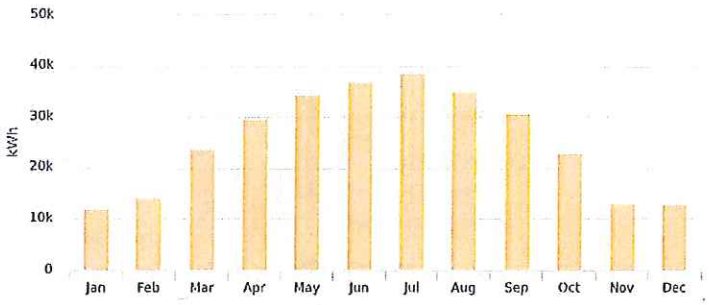
Project Name	Sustainable NW Chiloquin
Project Address	42.575,-121.876
Prepared By	Renewable Energy Associates ryan@renewableassociates.com

System Metrics

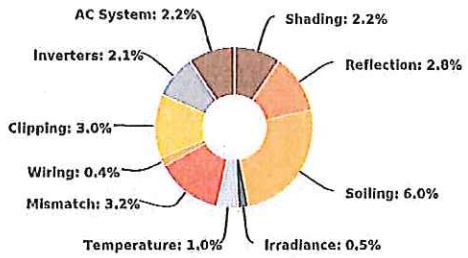
Design	Array 2
Module DC Nameplate	199.8 kW
Inverter AC Nameplate	150.0 kW Load Ratio: 1.33
Annual Production	303.4 MWh
Performance Ratio	78.7%
kWh/kWp	1,518.8
Weather Dataset	TMY, 10km Grid (42.55,-121.85), NREL (prospector)
Simulator Version	c9e3a32f98-993dad56e2-a46067c7d4-3c2d609189

Project Location

Monthly Production



Sources of System Loss



Annual Production

	Description	Output	% Delta
Irradiance (kWh/m²)	Annual Global Horizontal Irradiance	1,720.4	
	POA Irradiance	1,929.5	12.2%
	Shaded Irradiance	1,886.4	-2.2%
	Irradiance after Reflection	1,833.2	-2.8%
	Irradiance after Soiling	1,723.2	-6.0%
	Total Collector Irradiance	**1,723.2**	**0.0%**
Energy (kWh)	Nameplate	344,196.7	
	Output at Irradiance Levels	342,560.3	-0.5%
	Output at Cell Temperature Derate	339,068.3	-1.0%
	Output After Mismatch	328,150.3	-3.2%
	Optimal DC Output	326,797.0	-0.4%
	Constrained DC Output	316,860.9	-3.0%
	Inverter Output	310,326.0	-2.1%
	Energy to Grid	**303,395.0**	**-2.2%**
Temperature Metrics			
	Avg. Operating Ambient Temp		9.2 °C
	Avg. Operating Cell Temp		18.4 °C
Simulation Metrics			
	Operating Hours		4695
	Solved Hours		4695

Condition Set

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	East-West	-3.56	-0.075	3°C

Soiling (%)	J	F	M	A	M	J	J	A	S	O	N	D
	6	6	6	6	6	6	6	6	6	6	6	6

Irradiation Variance	5%
Cell Temperature Spread	4° C
Module Binning Range	-2.5% to 2.5%
AC System Derate	1.50%

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