



WASHOE COUNTY

Integrity Communication Service

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STAFF REPORT

800 MHZ JOINT OPERATING COMMITTEE MEETING DATE: July 16, 2021

DATE: Tuesday, July 13, 2021

TO: 800 MHz Joint Operating Committee

FROM: Melissa Lawney, Regional Communications Coordinator, Washoe County Technology Services 775-858-5952, mlawney@washoecounty.us

THROUGH: Quinn Korbolic, IT Manager – Regional Services, Washoe County Technology Services

SUBJECT: Recommendation to approve and recommend that the Board of County Commissioners approve expenditures for Washoe County Regional Communication System solar panel and power system replacement at the Fox Mountain communication site for a cost not to exceed [\$388,000].

SUMMARY

Recommendation to approve and recommend that the Board of County Commissioners approve expenditures for Washoe County Regional Communication System solar panel and power system replacement at the Fox Mountain communication site for a cost not to exceed [\$388,000].

The Fox Mountain Communication site utilizes power generated from photovoltaic solar panels and stored in lead-acid batteries. The current solar array and batteries are degraded and no longer function optimally. Because of the condition of this power system, this upgrade effort must be moved forward so that the power supply for the public safety radio system equipment does not experience interruptions in the future. The Fox Mountain site is almost 50 miles from the nearest substation for NV Energy, and cost to extend service to it would cost millions of dollars to extend a pole line and build a new substation.

Washoe County Strategic Objective supported by this item: Safe, Secure and Healthy Communities and Regional and Community Leadership

PREVIOUS ACTION

On September 18, 2007, the Board of County Commissioners awarded Washoe County Bid No. 2615-08 (PWP-WA-2007-3GL) for the purchase of a solar-supplemented Power Plant for the Fox Mountain radio communication site, from the lowest, responsive, responsible bidder, Independent Power Corporation, in the amount of \$110,973.81, to be installed on Fox Mountain in support of the Washoe County Regional Communications System (WCRCS).

BACKGROUND

In August 2006, Fox mountain communication was bid out for construction. Solar was provided as a means for secondary power as the site continued to grow. This is a maintenance effort that must be moved forward due to degradation power being supplied to equipment. As we approach the P25 installation it will be important to meet or exceed the power requirements of the sites to accommodate the two-system simultaneous operation. The Site is almost 50 miles from the nearest substation for NV Energy, and cost to extend service to it would costs millions of dollars to extend a pole line and build a new substation. Fox Mountain solar array was installed between 2006-2008 making the panels 15 years old. First generation Solar panels had a life expectancy of 15-20 years. The Fox solar panels were first generation solar panels and are effectively operating below 30% of expected power output. The Solar Array at Fox operates at a 30% decrease in power output and will not be able to sustain current system load soon. Meaning it will not be able to carry the future P25 expected loads.

Solar technology has changed since this install, the average solar panel now last 25-30 years. The panel quoted for the new installation are bifacial solar panel. The panels include photovoltaic cells that are on the top and the bottom of the panel. This helps during winter months where sun rays can bounce off the snow and hit the panel underneath. This especially helps then there is 2 feet of snow sitting on the top panel, and the top panel is unable to see the sun. Older generation Solar arrays yielded 125Amp per panel, instead of newer panels that can yield 400Amps per panel. On average (depending on manufacturer), the first 10 years, solar panels decrease in efficiency by 10% and by 20% by reaching 25 years.

The current quote {NSRS Washoe County Quote for Fox Mtn. Solar and Backup Power Replacement_07.02.21} for this work, include replacement of our DC power plant, that includes rectifier, DC to DC converters, and batteries, for back-up power. The work include removal of existing battery sets and rectifiers, and power panels upgrades. This system being install is an official microgrid, capable of a DC and AC output panel, that provide system flexibility, and growth potential.

April 19, 2007, Community development Conditionally approved Agenda #5 Special Use Permit Case No. SW07-004 to construct a 4 legged self-supporting tower, a 240 square foot equipment shelter, and a 96 square foot shelter to support the operation of a five channel 800 Mhz radio Site as authorized in Article 810 of the Washoe County development Code. The Project is located on the top of Fox Mountain approximately 25 miles north of the town of Gerlach, NV.

The Fox communication site is currently our most northern site, that provides critical communications to the Gerlach area, and various state routes and highways In future state Fox Mountain will be the site smack dab in the middle of the county providing critical communication and backhaul to two northern sites, that are in design phase, and expected to be installed 2022.

FISCAL IMPACT

The Fiscal Year 2021-2022 Budget has sufficient budget authority in the Washoe County Regional Communication System (210) in RCS Infrastructure (210300), Public Works Construction (814092) in an amount not to exceed [\$388,000].

RECOMMENDATION

Approve and recommend that the Board of County Commissioners approve expenditures for Washoe County Regional Communication System solar panel and power system replacement at the Fox Mountain communication site for a cost not to exceed [\$388,000].

POSSIBLE MOTION

Should the Board agree with staff's recommendation, a possible motion would be: "Move to approve and recommend that the Board of County Commissioners approve expenditures for Washoe County Regional Communication System solar panel and power system replacement at the Fox Mountain communication site for a cost not to exceed [\$388,000]."

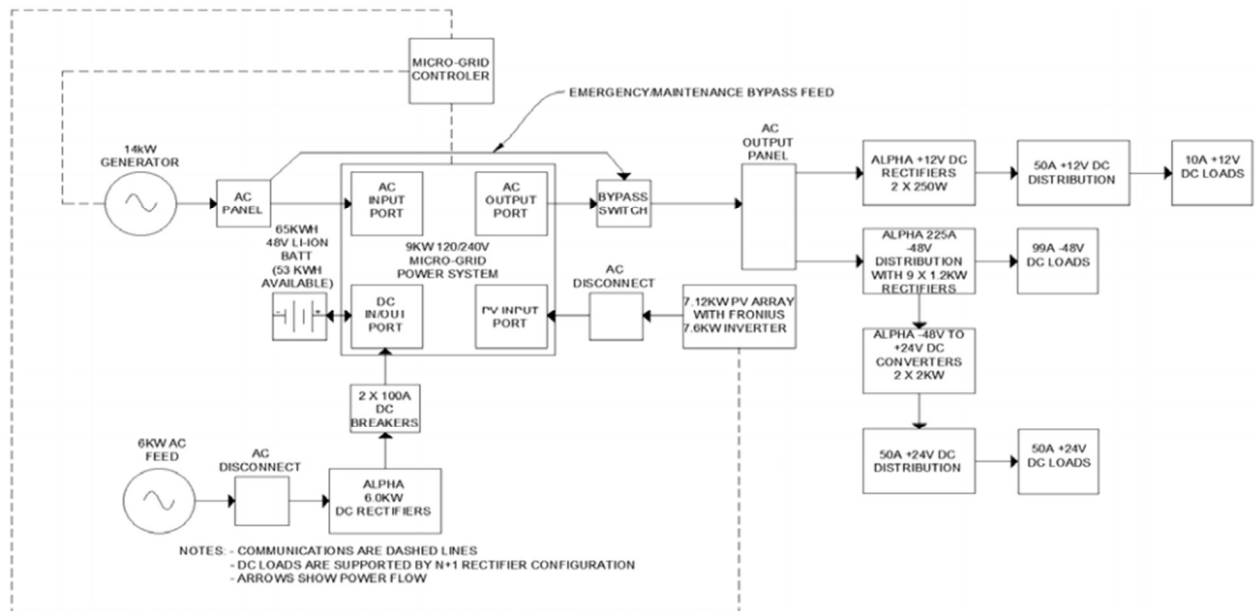


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July 2, 2021

NSRS - Washoe County
Quote for Fox Mountain Solar and Backup Power Replacement

1. 9kW Inverter/65kWh Lithium Ion Battery Bank Micro-Grid Package
 - o 2 Cabinets 72" H x 24" W x 27" D
 - o Inverter system is 4 x 2.25kW Modules with space to expand by adding up to 4 extra modules
 - o Batteries rated for 6000 cycles at 90% depth of discharge.
 - o Batteries meet UL9540 (tested to UL9540A)
 - o Additional 35kWh battery cabinet can be added at any time.
2. 7.12kW Longi Bi-facial PV array with 7.6kW Fronius Inverter (AC Coupled to Micro-Grid)
3. Alpha DC Plant in 19" 45RU rack
4. Cordex CXC HP Controller -48V Distribution 400A
 - o -48V Rectifiers
 - 6.0kW Dedicated to AC Feed
 - 10kW Dedicated to AC Load
 - o -48V to +24V DC converters 50A output
 - o +12V Rectifier 250W
 - o 12/24V Split Bus Distribution 100A



Quote Pricing Total: \$385,660.70

- Equipment - \$168,401.25
 - Design includes re-use of existing PV rack with new rails to support PV modules and includes markup for equipment of 25% per System Purchase Agreement
- PV and Power System Installation and Decommissioning - \$194,153.85
 - Services quoted using prevailing wage and includes 3rd party vendor mark-up of 32% per System Purchase Agreement
 - Includes removing materials/assets and transporting via truck to a County facility for decommissioning. Travel to the yard is estimated to a yard in Reno, NV.
- Spares - \$10,625.00
 - 3 x LG430W PV Modules
 - 2 x 2.5 kVA Sierra Inverter Modules
 - 1 x 1.2 kW Alpha 48V Rectifier Module
 - 1 x 2.0 kW Alpha 48V to 24V DC Converter Module
 - 1 x 250W Alpha 12V Rectifier Module
 - 1 x 3.0 kW Alpha Rectifier Module
- A&E Services - \$12,480.60 (NTE)
 - Construction Staking
 - Prepare Lease Exhibit
 - Construction Drawings
 - As-builts

5. Assumptions

- The estimate ship date is < 16 weeks after receipt of order.
 - Moving of the existing racks, cables, and equipment in the shelter are not included.
 - Updates to site grounding are not included. Site ground is assumed to be adequate for the new power system. (Engineering review of site ground is required for system compliance to code and for the warranty).
 - Pricing assumes the site is accessible during daylight hours.
 - Pricing assumes a four-man crew for an onsite duration of 14.5 days to complete tasks prior to cutover and transition.
 - Pricing is based off a single site mobilization and that all tasks are completed during this deployment.
 - Proposed costs do not include weather delays, acts of God, or other schedule impacts or delays.
 - Any required permits are not included.
 - Safety and Security systems are not included in the ROM.
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