

Staff Report

for the Regular Meeting of the Board of Directors, December 13, 2017

TO: Honorable Board of Directors
FROM: Keane Sommers, P.E., Hydroelectric Manager
DATE: December 4, 2017
SUBJECT: 2018 Electrical Engineering Services

HYDROELECTRIC

RECOMMENDATION:

Award a contract to IEC Corporation for electrical engineering support services in 2018 in the amount of \$257,500 and authorize the General Manager to execute the necessary documents as recommended by the Water and Hydroelectric Operations Committee.

BACKGROUND:

Following the transition away from the Pacific Gas & Electric (PG&E) Partnership Agreement in 2013 the Hydroelectric Department was no longer able to use PG&E engineers to support the Department. This resulted in a critical gap in the ability to oversee and evaluate electrical work by contractors and consultants and to provide guidance to staff.

In 2017 the Department retained the services of IEC Corporation to provide an onsite Electrical Engineer two days per week. The goal was to begin to develop a programmatic approach to capital improvements, increase the speed of repairs to operation problems as they arise, specify standard equipment, and critique the design of other consultants. IEC was selected through a competitive Request for Proposal process.

The contract has been a success and significant progress has been made. In addition to being available to respond to day to day issues, the Engineer has been assigned to complete approximately 35 discreet projects totaling approximately 1,420 hours of work as shown in the attached table.

Using this type of contracting mechanism provides cost savings to the District. Approximately 22 of the projects listed in the table would have required the District to complete some sort of competitive bid process. Avoiding the individual bid process saved the District at least \$22,000. Additionally the hourly rate negotiated with IEC for the engineer is below the market rate for similar services. Using the negotiated rate the District saved an estimated additional \$36,000 for a total savings of \$58,000.

Staff is recommending an award of a second year of the contract. Staff believes that there is a long term, ongoing need for an electrical engineer and will evaluate the need for a staff position during 2018. Staff plans to develop the needs of the position fully and will make a recommendation to the Board during the next budget cycle.

BUDGETARY IMPACT:

The FY2018 Hydroelectric Department Budget includes \$257,500 for Electrical Engineering Support Services. The contract being awarded is structured such that it cannot exceed \$257,500 unless approved by the District. Costs under the contract will be paid on an hourly basis. No costs will be encumbered until 2018.

Attachment (1)

- 2017 NID-IEC Electrical Engineering Project Log

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2017 NID- IEC Electrical Engineering Project Log						
Line #	Facility	Project Name	Project Description	Project Duties	Est. Hours [#]	Est. Hours [%]
1	BPH	52G Breaker Replacement	Procure and replace generator breaker.	Documented existing breaker. Created specification for replacement breaker. Obtained quote and coordinated ordering of retrofit breaker. Inspected switchgear for wear.	43	3%
2	BPH	Inter-tie Relay Upgrade	Removal and replacement of the line protection relays.	Performed review and provided markups/comments during the design phase. Provided PG&E interconnection support. Created startup and test plan.	71	5%
3	BPH	Inter-tie Haypress Trip Event	Haypress facility interconnection request to NID transmission line.	Performed review of relay and device test reports. Provided comments and recommended additional testing.	28	2%
4	CNPH	Digital Meter	Digital meter readings are incorrect.	Review of technician findings and provided recommendations for calibration.	14	1%
5	CPPH	CAISO Frequency Response Support	Provide frequency response values for CAISO documentation	Performed review of existing documentation and identified missing CAISO information. Coordinated with contractor to perform testing.	43	3%
6	CPPH	Relay Upgrade	Replacement of generator and line protection relays.	Performed review and provided markups/comments during the design phase. Provided onsite technical support during construction phase.	327	23%
7	CPPH	AVR Upgrade	Removal and replacement of the generator AVR.	Review of construction redlines. Compared with as-built drawings.	43	3%
8	CPPH	CCVT Design	Facility requires new CCVT's installed for new relay protection project.	Performed detailed design for installation new CCVT's. Coordinated ordering of BOM. Provided onsite construction support. Provided PG&E interconnection support.	99	7%
9	CPPH	Breaker Cabinet Water Intrusion	Identify cause of water intrusion.	Performed field inspection and troubleshooting to identify cause. Created work tag for repair.	28	2%
10	CPPH	Backup Genset Design	Add a backup generator for station service backup.	Performed facility loading calculations and preliminary sizing of genset.	28	2%
11	CPPH	Step Potential	Main GSU transformer step potential concern.	Performed preliminary inspection and provided recommendations.	14	1%
12	CPPH	Operator Platform Grounding	Missing ground pigtailed touch potential concern	Performed detailed electrical design for installation of grounding. Coordinated ordering of BOM. Provided onsite construction support.	43	3%
13	CPPH	CAISO Metering Power	Verify ISO metering has UPS or is off DC bank	Performed drawing review and field verified power source.	14	1%
14	CPPH	Redline Drawing Markup	Identify whether markups have been incorporated into as-built	Review of existing as-built facility drawings to verify comments have been incorporated.	14	1%
15	CPPH	CAISO Metering Recertification	Provide documentation for revenue metering recertification.	Identified CAISO information required for meter recertification. Performed review of existing documentation as necessary. Coordinated with contractors to perform testing as needed for missing documentation.	43	3%
16	CSPH	Battery Room Evaluation	The battery and chargers OSHA compliance.	Performed initial inspection of battery system. Perform calculations and investigate OSHA requirements. Create report with recommendations.	14	1%
17	CSPH	CAISO Metering Upgrade	ISO Interconnection bucket support	Performed review of existing documentation and identified missing CAISO information. Coordinated with contractor to perform testing.	43	3%
18	CSPH	Metering Inaccuracy	Analog meters and HMI meter do not match the ABB controller meters.	Review of technician findings and provided recommendations for calibration.	14	1%
19	DCPH	PG&E Turnover Documentation	Purchase of Deer Creek Powerhouse from PG&E.	Performed site inspections and review of technical documentation in relationship the facility turnover package.	43	3%
20	DFPH	87G Trip Investigation	Investigate cause of generator differential trip event.	Provided technical support during and after trip event. Created summary report including cause of event, and recommended changes to keep the event from occurring again.	28	2%
21	DFPH	CAISO Frequency Response Support	Provide frequency response values for CAISO documentation	Performed review of existing documentation and identified missing CAISO information. Coordinated with contractor to perform testing.	28	2%
22	DFPH	AVR Upgrade	Removal and replacement of the generator AVR.	Performed review and provided markups/comments during the design phase. Provided technical support during construction phase.	71	5%
23	LRPH	Power House Design	New Powerhouse design.	Performed review and provided markups/comments during the preliminary design and specification.	43	3%
24	NERC	NERC CIP Project Development	Identify CIP projects and create project sheets describe scope and cost estimate.	Reviewed and edited scope and cost estimates.	14	1%
25	NID	NID Communication Design	Develop Wide Area Network for powerhouse communication to hydro headquarters.	Performed review and provided markups/comments during the preliminary design phase.	57	4%
26	NID	NID Dissolved Gas Analysis	Review of DGA reports.	Performed review of DGA reports and provided recommendations.	14	1%
27	NID	NID Drawing Template	Develop drawing template for powerhouse drawings.	Performed review and provided comments on proposed drawing templates.	28	2%
28	NID	PG&E Buck Boost Evaluation	Develop generator capability curve.	Provided review and comments on generator testing and development of generator capability curve.	14	1%
29	NID	Drawing Consolidation Project	Consolidation of powerhouse drawing package onto one drawing style and format.	Performed review and provided comments on drawing package.	28	2%
30	RPH	Rollins Backup Genset Design	Add a backup generator for station service backup.	Performed facility loading calculations and preliminary sizing of genset.	28	2%
31	RPH	Rollins CAISO Metering Recertification	Provide necessary documentation for revenue metering recertification.	Identified CAISO information required for meter recertification. Performed review of existing documentation as necessary. Coordinated with contractors to perform testing as needed for missing documentation.	28	2%
32	RPH	Rollins PRV Actuator Support	PRV Actuator power and control.	Performed preliminary equipment evaluation and design for new PRV actuator. Review and comment of specification.	14	1%
33	RPH	Rollins Breaker Replacement	Replacement of main 60kV breaker.	Create specification for purchasing of new breaker.	14	1%
34	SFPH	Scotts Flat 46 Event	Investigate cause of phase imbalance trip event.	Provided technical support during and after trip event. Created summary report including cause of event, and recommended changes to keep the event from occurring again.	28	2%
35	SFPH	Scotts Flat SEL-700G Review	Review of relay programming file.	Performed review and provided comments on relay settings and logic.	14	1%