CITY COUNCIL STAFF REPORT

DATE: June 18, 2014 CONSENT AGENDA

SUBJECT: APPROVE AMENDMENT NO. 1 TO THE AGREEMENT WITH NEWCOMB|ANDERSON|MCCORMICK ENERGY ENGINEERING AND CONSULTING (NAM) FOR THE DEVELOPMENT OF AN RFP FOR SOLAR PV PROJECT(S).

FROM: David H. Ready, City Manager

BY: Special Projects Coordinator

SUMMARY

The City Council will consider an amendment to the agreement with Newcomb|Andersen|McCormick (NAM) for the development of a Solar Request For Proposal (RFP) document.

RECOMMENDATION:

1. Approve Amendment No. 1 to Agreement No. A6401 with Newcomb|Andersen|McCormick Energy Engineering and Consulting, for Phase 1 development of a Solar RFP and associated services, in the amount of $85,000, pursuant to Palm Springs Municipal Code Section 7.04.030.

2. Authorize the City Manager execute the Amendment to the Agreement.

STAFF ANALYSIS:

On June 4, 2014, the City Council received a presentation on the feasibility of proceeding with Solar Photo Voltaics (PV) installations on several City buildings. At the conclusion of the report the City Council provided direction to proceed to the next step, which would be the development of the RFP to solicit proposals from the solar industry. NAM has provided a proposal for the development of the RFP document, copy attached.

ITEM NO. 4G

NAM participated in a competitive solicitation process conducted by the City with 8 other engineering firms for consulting services on the City's energy management project with Chevron. Having been fully vetted under that process and successfully performed the third party peer review and feasibility studies, NAM has gained and demonstrated specific knowledge and expertise on the City of Palm Springs solar initiative. As such, pursuant to Section 7.04.030, the City Council is authorized to award this agreement for these services without another competitive process.

FISCAL IMPACT:

The cost for Phase 1 development of an RFP and associated services is $85,000. Funds for this project are available in the Sustainably Fund Unallocated Projects.

Allen Smoot, Special Projects Coordinator

David H. Ready, City Manager

Attachment:
Proposal

Newcomb | Anderson | McCormick
ENERGY ENGINEERING AND CONSULTING

June 9, 2014 P- 2451.03

Mr. Allen Smoot
City of Palm Springs
3200 E. Tahquitz Canyon Way
Palm Springs, CA 92263-2743

Re: Proposal: Solar PV System Support

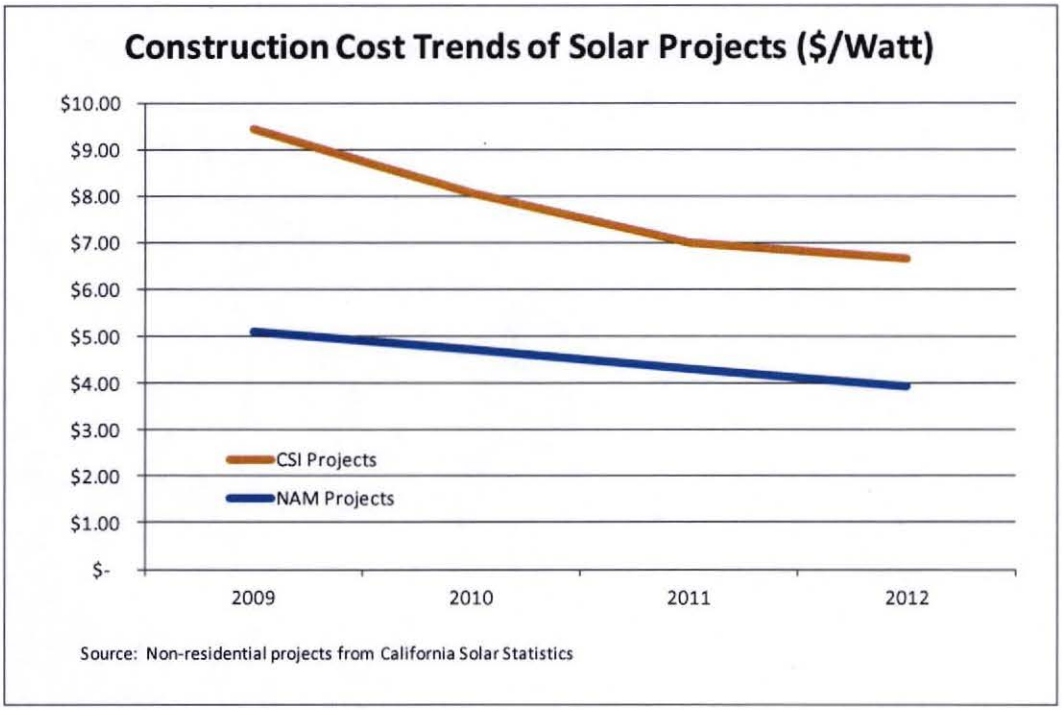
Dear Mr. Smoot:

Newcomb Anderson McCormick, Inc. (NAM) is pleased to submit this proposal to assist the City of Palm Springs (City) with developing an RFP to acquire energy through a Power Purchase Agreement (PPA) or direct purchase, evaluating proposals received in response to the RFP, and supporting the City in negotiating, design review and construction, should such an agreement be advantageous to the City. Our firm is uniquely qualified to perform these services for the following reasons:

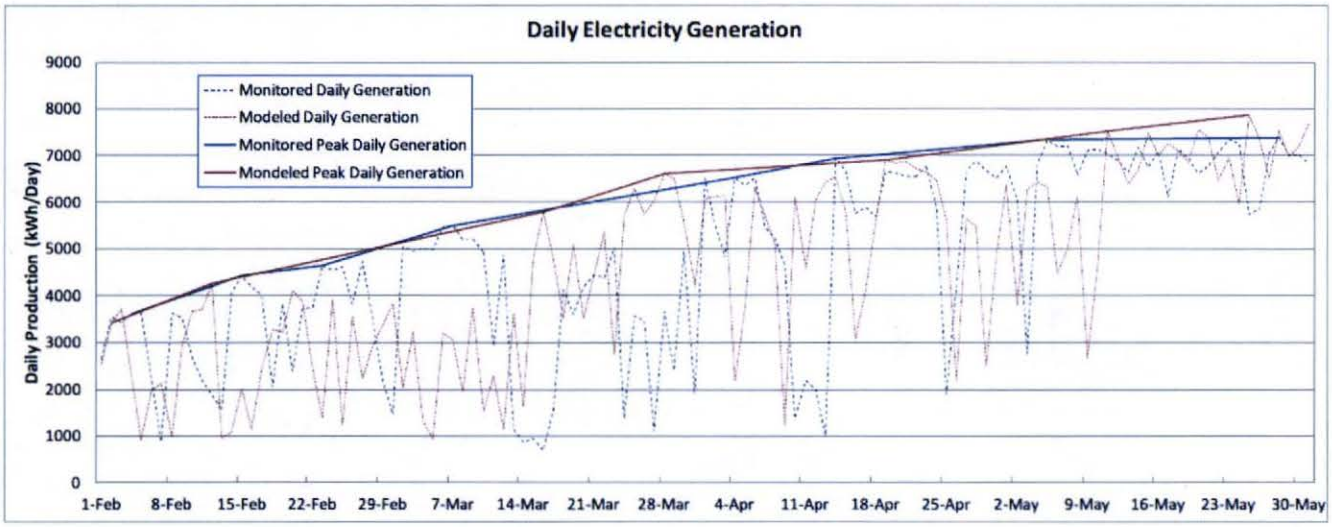
- Unparalleled experience with solar PV and energy efficiency. We currently provide Comprehensive Technical Services for Renewable and Advanced Energy Generation Systems for the San Francisco Public Utilities Commission and Hetch Hetchy Water and Power, management support of the California Public Utilities Commission's evaluation of the California Solar Initiative, and management and technical oversight of several statewide energy efficiency partnerships on behalf of California investor-owned utilities. These programs involve thousands of individual projects.
- A deep understanding of the financial and regulatory environment. Our clients include utilities, the CPUC, municipalities, and educational institutions. NAM works everyday within the legal, regulatory, and financial environment that influences the success of energy programs in California. NAM will leverage this knowledge to the benefit of the City.
- A successful track-record of timely delivery of energy projects for many clients, including over 25 California school districts. NAM staff has performed solar PV projects for a variety of customers and applications, including the Washington Unified School District (WUSD), Lawrence Berkeley Lab, the City of San Carlos, the Town of Yucca Valley, the City of Oakland, and the City of Pleasanton. Our recent work with WUSD included a large ground-mounted system at their River City High School campus.

Quality and Accuracy

Newcomb Anderson McCormick has worked with customers independently of PV system suppliers to drive our customers' costs lower than industry averages. The California Solar Initiative has posted information showing the downward trend over the last five years for the installed cost statewide of PV systems. Our focus on accurate site assessments, robust technical specifications, and public sector procurement best practices results in our clients' projects costing over 30% less than the industry average, as shown in the graphic below.



Our production estimates and financial forecasts have also proven accurate over time. Our financial models have been used by many clients to make solar investment decisions in the past three years, serving as the basis for contracts valued at over $200 million and installed capacity of more than 50 MW. We regularly compare our forecasts to actual system performance as part of our support of clients through the entire lifecycle of a solar project. The following chart demonstrates the accuracy of our work for a client in the Sacramento area.



Approach

Task 1 –Secure California Solar Initiative (CSI) Incentives & Develop RFP

NAM will assist City staff in applying for CSI incentives. NAM will gather the necessary forms from Sothern California Edison (SCE) and the California Public Utilities Commission (CPUC). We will help the City properly complete and submit these forms to ensure CSI incentives are secured.

NAM will develop all technical and implementation sections of an RFP to solicit a turnkey solar project. The sections of the RFP we develop will focus on requirements, performance specifications, a description of existing conditions, and instructions to respondents. The instructions will require each respondent to provide a sample contract as part of their proposal. The terms and conditions of a proposed solar project are as critical to evaluate as the technical aspects of the system, as they have enormous effect on the financial outcome of the system.

The basis of these RFP sections will be knowledge developed during the development of the initial Feasibility Analysis and our extensive experience with solar system requirements and local government procurement processes. We will leverage our experience writing these types of documents to quickly and comprehensively document the solar system and technical requirements.

Draft language will be submitted to City staff and legal counsel for review and feedback. It is critical at this juncture in the process to coordinate the development of the technical sections of the document with the work the legal team is doing on the terms and conditions, as well as other parts of the RFP, to ensure complete, unambiguous coverage of City requirements. We anticipate one, but no more than three, meetings to discuss needed modifications to the draft technical sections of the RFP. NAM will incorporate feedback from City staff and legal counsel into the final version document.

Outcome and Deliverables: Draft and Final elements of the RFP.

NAM engineering staff will be available to participate in site walks, if any, and assist the City in answering questions and requests for clarification from proposers during the proposal preparation process. Support continues under this task through the receipt of proposals by the City.

Task 2 - Vendor Selection and Negotiation Assistance

NAM will conduct an evaluation of proposals submitted to the City in order to select the best bid and help the City negotiate the most favorable solar system. For the purpose of this proposal, we assume that the City will receive up to 5 proposals. Should the number of proposals be higher, NAM and the City will work together to determine the appropriate level of additional effort.

We will conduct a preliminary review of the proposals to determine technical compliance with specifications and assess the proposed equipment, PV output models, and the implementation approach. Based on the number of proposals received, our preliminary review of the proposals, and

our experience in the solar industry, we will then recommend a short list of proposers for detailed evaluation and negotiation, and identify potential problem areas in each of the proposals. NAM will develop a list of clarification questions for each shortlisted proposer, the answers to which will support more detailed analysis and negotiations. NAM may recommend a more detailed evaluation of all proposals, or a subset, depending on the number received their quality, and pricing.

NAM will provide the following services during as part of our preliminary proposal review:

- Assess whether each proposed system meets economic criteria established by City
- Development of detailed proposal evaluation and scoring criteria
- Preliminary review of proposals to determine technical compliance with specifications
- A risk assessment that quantifies the impacts of key variables on the financial performance of the proposed system
- Assessment of proposed equipment, PV performance calculations and models
- Evaluation of proposed project team, project implementation approach, and ability to meet schedule
- Identification of problem areas and areas of ambiguity for follow-up
- Recommended a "short list" of proposers for detailed evaluation and potential negotiations

NAM will also perform a detailed evaluation of the short-listed proposals and provide the City a recommendation on which vendor should be selected as the solar provider. We will thoroughly assess the shortlisted proposals, validate the proposers' PV output estimates, their design, and the economic performance of their proposal.

We will carry out a more detailed risk analysis on each shortlisted proposal to bracket (e.g., determine the upper and lower limits of) the potential effects of key elements of the proposed system. Many of the factors to be considered in this analysis include the terms and conditions proposed as part of the contract itself. In order to strengthen the City's position in negotiating a contract, NAM will also develop a list of cost drivers, including any "alternative" business arrangement proposed (e.g. virtual net metering, system size, etc.).

In addition to recommending a provider for negotiations and award, NAM will update the cost and energy savings analysis developed for the City as part of the Feasibility Analysis. The updated analysis will use pricing from the shortlisted proposals and model solar output based on proposed system designs. This will result in a more accurate estimate of energy and cost savings as a result of implementing the project.

NAM will provide the following services during the detailed evaluation and vendor selection phase of work:

- Validate each proposed system meets economic criteria established by City
- Perform a "peer review" independent evaluation of proposers' PV output models to validate system performance
- Analyze technical proposal to include PV array sizing, location, orientation, technology, and

the location of inverters, transformers, switchgear, as well as safety issues related to equipment location and isolation from students and staff
- Review proposed PV module mounting systems and civil, structural, and geotechnical considerations (to the extent permitted by the detail in the proposals)
- Assess proposers' system design and identify potential problems and areas for improvement
- Perform detailed risk assessment to quantify and "bracket" risks associated with both the technical elements of the system and the terms of the contract
- Review proposed data acquisition and monitoring system against RFP requirements
- Thorough evaluation of proposed project team, identification and qualifications of key staff, project history, capabilities to accomplish scope, and information regarding contractor licensing, insurance, and references. NAM will also check contractors against the California State Contractor's Licensing Board to determine if any complaints have been filed or fines have been levied against each firm.
- Detailed evaluation of proposed implementation approach and ability to meet schedules
- Review proposed maintenance procedures and offerings
- Ensure that all RFP requirements for system and equipment warranties and any performance guarantees are met
- Coordinate technical, cost, and legal/terms & conditions issues with legal team

NAM will support the negotiations themselves by identifying cost drivers and other key issues for discussion with the selected PV vendor. Additionally, NAM will analyze the pros and cons of the options being discussed during the negotiation process and provide technical recommendations regarding alternative approaches, designs and equipment.
NAM will provide the following services in support of the negotiations and contract execution:

- Assist the City and the legal team with the contract negotiation phase with selected proposers, including negotiation strategies, economic and performance targets, schedules, and terms and conditions
- Develop a list of cost drivers for negotiations, including any "alternative" business arrangements proposed
- Review any changes to proposal based on negotiations prior to contract award
- Participate in negotiation process as requested by City
- Provide recommendations and assist City with final decision on a contract award

Outcome and Deliverables: A memo describing the strengths and weaknesses of each shortlisted proposal, assessing areas of concern, and recommending a solar provider for contract negotiations and award of the project. Updated lifecycle cost and energy savings estimates for the recommended solar provider. A list of cost drivers for use in negotiations, agendas and other materials needed to facilitate the negotiation meetings, and any required modifications to technical specifications or contract language resulting from the negotiations.

Task 3 – Design Review

The design phase of the solar project is envisioned to consist of several rounds of Contractor

submittals, City reviews, comments, changes to drawings, and approvals. The "Essential Design Service Agreement Terms" included as Attachment B to the RFP defines three phases of the design: (1) Schematic Design, (2) Design Development, and (3) Construction Document. Together, the three phases of design represent a thorough approach to design submittal, review and approval. NAM will manage the Design Review process on behalf of the City and will provide technical support to review these documents and provide feedback to the City and Contractor (both in writing and in meetings) to ensure the technical soundness of the design as well as contract compliance. This work will be performed by NAM licensed professional engineers.

Each round of design review will consist of a technical assessment of key system components, a review to ensure that proposed design meets contract requirements, an evaluation of system integration issues (i.e., how the system components will be assembled into an operable system that is both efficient and effective), an assessment of implementation considerations, and an evaluation of the impacts of all the aforementioned on system performance and cost. Areas likely to be covered in the design review include:

- Key solar components (e.g., panels, inverters, etc.)
- Overall electrical design and integration of systems
- Monitoring system, including data network connections
- PV panel mounting system
- Compliance with PG&E interconnection and Rule-21 requirements
- Site preparation and access to the site
- Civil/structural/geotechnical
- Signage
- Ancillary equipment (fences, lighting, security cameras, access, etc.)

In addition to the technical considerations listed above, NAM will review the Contractor's submittals for obtaining needed permits and to qualify for the California Solar Initiative, which has its own technical standards for project eligibility.

It is also expected that the Contractor will update their PV system performance modeling at each phase of the design. The performance of the PV system is critical to the success of the project as it represents the energy production (and therefore financial savings) of the project. NAM will ensure the Contractor's model is accurate (and appropriately conservative) at all points in the design with the goal of maximizing achievable City energy savings over the lifespan of the project.

The design phase is likely to uncover additional opportunities to optimize the system design and drive down implementation costs (i.e., value engineering). NAM will look for opportunities to optimize the Contractor's design and perform analysis on any value engineering proposals. We will evaluate each opportunity with the goal of maximizing the cost-effectiveness of the project while ensuring the City receives fair value for any changes to the technical specifications or other contract documents.

As the design progresses, the Contractor is also required to provide several updates to their "Project

Construction Cost Estimate". NAM believes this is an important component of the design and, along with identifying value engineering opportunities, requires strong independent third-party verification of the design and cost considerations. This is an area where we can leverage our significant industry expertise to validate technical assertions made by the Contractor and minimize scope creep.

NAM will provide the following services:

- Review all design documentation at each required phase of design review (as defined in the "Essential Design Service Agreement Terms")
    - Electrical
    - Monitoring system
    - System mounting system
    - Site preparation and access
    - Civil/structural
    - Signage
    - Ancillary equipment (fences, lighting, security cameras, access, etc.)
- Provide written feedback to City and Contractor
- Ensure that appropriate professional engineer stamps and approves have been performed on designs and calculations, as required
- Ensure Contractor obtains all necessary approvals and permits (including CSI-related)
- Confirm and validate all updates to PV system performance modeling
- Verify that system design and equipment specifications will meet warranties and guarantees required by contract
- Ensure that all industry standards for PV systems are met, including UL, IEEE and CEC and that documentation is provided regarding factory bench testing, as required
- Participate in all necessary meetings
    - Design review
    - City staff
    - Project management
    - Management and Board presentations
- Review updated "construction cost estimates"
- Advise on value engineering opportunities

Outcome and Deliverables: NAM will manage the Design Review process within specified schedules to ensure that all contract-required drawings, documentation, and manuals are provided by the Contractor and that City reviews and comments are incorporated in final design documents. All necessary transmittals and approval documentation will be generated by NAM subject to City approval. Outcome will be approved design and construction-ready documentation.

Task 4 – Technical Project Oversight

For a project of this scale and complexity with a scope and technical nature that may lie outside the core competencies of the City, it will be critical for the City to rely upon experts with experience in

solar PV project construction and commissioning to help ensure that the project meets the requirements of the contract and that its implementation proceeds in the best interest of the City. There are many issues that arise in construction relating to potential change orders, schedule delays, material substitutions, and substandard performance of the completed systems and it will require ongoing, direct attention from a qualified firm representing the City to achieve the expected results of the project.

NAM proposes to fill this role as the "Owner's Engineer" during the construction and commissioning phases to meet these goals. NAM will provide the following services during the construction phase. All approvals will be made in consultation with and with concurrence of City staff.

- Review and comment on schedules and status reports
- Review and recommend approval of any requests for substitution of materials
- Review and recommend approval of change orders
- Review invoices and recommend approval of payments based on demonstrated progress, as requested by the City
- Evaluation of claims
- Advise on value engineering opportunities
- Field inspections during technical phases of construction (e.g., stringing, inverter tie-in)
- Technical analysis as directed by the City

Outcome and Deliverables: A complete system installation complying with contract requirements and ready for commissioning. Coordination and review of all contractor-required construction documentation, with corresponding recommendations for the City.

Task 5 – QA, Inspection, and Commissioning Oversight

Just as it is vital for the City to establish adequate technical support for the construction phase of the project it will be important to establish the Owners' Engineer role for QA/QC, system inspection, startup, and commissioning processes to ensure that the PV system will meet the long term goals of the project. Commissioning is a way to formalize quality control of the installed PV system. The process ensures that the system is safe, properly installed and high performing. Through proper QA, Inspection, and Commissioning the City will be completing the final steps required to ensure that their investment will perform as expected.

NAM will provide the following services for the QA, Inspection, and Commissioning. All approvals will be made in consultation with and with concurrence of City staff.

- Review, comment on, and recommend approval of System Acceptance Test and Performance Test plan
- Technical oversight, observation, and inspection during testing and startup of PV system
- Monitor functional testing, commissioning and performance testing. Confirm that acceptance testing, including functional test of PV system, monitoring system, and ancillaries meet testing and commissioning procedures of the contract, of PG&E, and the requirements to receive CSI rebates.
- Verify all required inspections are performed and all permits (including PG&E

interconnection agreement) are obtained prior to system startup
- Participate in the development and tracking of Contractor Punch-Lists and close-out
- Support of project close-out activities, tracking and review of reports required upon completion of construction
- Special studies and tasks as directed by the City

Outcome and Deliverables: A fully inspected and commissioned PV system meeting contract performance requirements and specifications. Final inspection, testing, and commissioning documentation as developed by the contractor will be reviewed and approved by NAM before final system acceptance by the City.

Team Qualifications and Staffing Plan

NAM is a highly respected engineering and program management consulting firm devoted exclusively to the field of energy engineering and program development and management for institutional, industrial, and commercial customers. Our work is characterized by accurate and thorough technical analysis and documentation, conservative economic evaluation, solid, buildable projects, and groundbreaking, large-scale programs. We have designed, managed, and implemented a wide range of energy efficiency programs for investor-owned utilities (IOUs), municipal utilities, higher education customers, and local governments.

The staff we are proposing to do this work have demonstrated experience in conducting public sector procurements and writing performance based specifications, with an emphasis on solar and energy efficiency. We are proposing staff who are recognized industry leaders in energy programs.

Michael K. J. Anderson, P.E., a Principal of Newcomb Anderson McCormick, will be responsible for overseeing the engineering and technical elements of the feasibility analysis. As the firm's Chief Engineer with over 30 years of experience in the energy industry, Mr. Anderson is responsible for the technical quality of all engineering analyses and design, overseeing the engineering staff, and providing technical assistance and training to the engineering staff. Mr. Anderson's extensive expertise includes all aspects of energy engineering projects, including renewable generation, energy efficiency analysis, energy management, PV systems, HVAC systems, central plants, cogeneration, and retrocommissioning. Mr. Anderson holds a Master of Engineering and B.S. in Mechanical Engineering from Harvey Mudd College. He is a registered Professional Engineer (Mechanical) in California.

Matt J. Sullivan, P.E., a Senior Program Manager, will conduct the solar-related field work and analysis. Mr. Sullivan has 30 years of experience developing and managing distributed and renewable generation and energy efficiency programs and projects. His experience has included energy efficiency program management for California IOUs, higher education, and many other large scale private and public sector customers, including project and construction management for projects ranging from 50 kW design-build turnkey photovoltaic systems to 150 MW central plants. Mr. Sullivan holds a Bachelor of Science in Marine Engineering from the California Maritime Academy. He is registered Professional Engineer (Mechanical) in California and LEED Accredited

Professional. Mr. Sullivan has served as a City of Pleasanton Planning Commissioner for six years and is currently a City Councilmember.

Kyle B. Manahan will provide engineering and technical support for all activities associated with the program. Mr. Manahan has been involved in providing feasibility analyses, technical review and cost/benefit calculations of PV systems sized 1MW and above to several California K-12 and Community College Districts. Mr. Manahan works out of NAM's San Francisco office and has been with firm for 3 years. He will be fully available for the duration of the project. He holds a Master of Civil Engineering from the University of Colorado, Boulder.

Simon J. Olivieri has served as an Energy Engineer at Newcomb Anderson McCormick since 2011, and will provide engineering and technical support for all activities associated with the program. Mr. Olivieri has been involved in providing feasibility analyses, technical review and cost/benefit calculations of PV systems sized 1MW and above to several California K-12 and Community College Districts. He holds a Master of Civil Engineering from the University of Colorado, Boulder.

Schedule and Budget

NAM understands that time is of the essence in this engagement and we have developed an approach and assembled a team that will deliver results of the highest quality on a timeline that meets District needs.

Solar RFP Support Timeline

Task/Activity	Date
Contract Approval	6/18/2014
Task 1 - Writing and Issuance of Request for Proposals	7/31/2014
RFP issued to the solar industry	
Task 2 - Vendor Selection and Negotiation Assistance	8/31/2014
Responses to RFP received	
Recommendation formulated	
Contract signed	
Task 3 -Design Review	10/31/2014
Task 4 - Technical Project Oversight	12/31/2014
Task 5 - QA, Inspection, and Commissioning Oversight	3/31/2015

Cost Effectiveness

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Newcomb Anderson McCormick strives to deliver renewable energy services as cost-effectively as possible. We understand the financial benefits of the City's energy project are, in part, driven by support costs that lie outside of a design-build contract with a solar provider, which include consulting fees. We typically employ a phased contracting approach that gives us the flexibility to develop analytical information and deliverables to support each critical decision point throughout the life of a project. That way, should the results of our feasibility work (or RFP responses) demonstrate a project will not deliver sufficient benefits to the City, we can work together to re-scope the project or decide to pursue other City priorities. Our experience has shown that consulting costs for the entire lifespan of the project (from feasibility through construction) should not account for more than 4-5% of the total project cost, as opposed to higher rates in traditional construction projects. We encourage the City to carefully consider consulting fees when looking at implementing your renewable energy program and recommend validating consulting costs on past projects as part of reference checks.

To accomplish the proposed scope of work, we estimate a total cost of $226,000, including travel and expenses. This amounts to approximately 1.8% of construction cost. The cost of each task is shown below, along with an estimate of direct expenses such as travel and document production. Direct expenses will be billed to the City for actual costs incurred by NAM.

Newcomb Anderson McCormick proposes to provide these services in two phases as outlined below.

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Proposed Project Budget

Task	Hours	Cost*
Phase 1		
Develop RFP	224	$39,200
Solicitation Support	112	$19,600
Proposal Evaluation	144	$25,200
Direct Costs**		$1,000
Sub-Total*	**480**	**$85,000**
Phase 2		
Contract Negotiations	112	$19,600
Project Management	96	$16,800
Design Review	224	$39,200
Technical Oversight During Construction	116	$20,300
Construction Management	0	$0
QA, System Testing, and Commissioning	116	$20,300
Project Closeout	60	$10,500
Performance Management	76	$13,300
Direct Costs**		$1,000
Sub-Total*	**800**	**$141,000**
Grand Total	**1,280**	**$226,000**

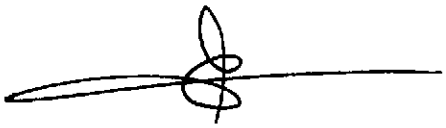
** Includes cost of sub-contractors*
*** District will be invoiced for actual expenses incurred*

The support as proposed by NAM will provide the basic technical, financial and regulatory information necessary for the City to make a decision on proceeding with the project.

Newcomb | Anderson | McCormick
ENERGY ENGINEERING AND CONSULTING

We are enthusiastic regarding this opportunity and look forward to a follow-up conversation to further discuss our proposal. Please contact me at (415) 896-0300 to set up a meeting and to answer any questions you may have. We look forward to working with you and your staff.

Sincerely,



John M. Newcomb
Principal

Newcomb|Anderson|McCormick
ENERGY ENGINEERING AND CONSULTING

6/9/2014

Newcomb Anderson McCormick proposes the following tasks to support the City of Palm Springs for the duration of the solar PV project. We propose to act as the "owner's representative" for each phase of the project, coordinating our work with City staff and personnel from the selected solar provider. The tasks described below will ensure the City has access to the expertise required to determine the feasibility of the project, procure equipment and services from a solar provider, negotiate a contract for implementation of solar systems, review and approve technical documentation and other contract submittals, as well as the capabilities to provide technical oversight of the solar provider during design, construction, and system testing/commissioning.

Task	Activity	Task Owner*		NAM Effort	
		NAM	COPS	Hours	Est. Cost
Phase 1					
Develop RFP	Draft technical specifications	1		224	$39,200
	Draft front end & general conditions	1	2		
	Document existing conditions for site specific appendices	1			
	Draft instructions to proposers	1			
	Develop evaluation methodology, scoring criteria and scoring sheets	1			
	Identify and edit model solar implementation agreement	1			
Solicitation Support	Prepare for and attend proposers' conference and site walks	1	2	112	$19,600
	Prepare responses to proposer questions	1	2		
	Develop addenda, as needed	1	2		
Proposal Evaluation	Review and conduct preliminary proposal scoring	1	1	144	$25,200
	Develop short list for interviews	1	1		
	Prepare for and attend proposer interviews	1	1		
	Finalize proposal scoring	1	1		
	Develop Proposal Evaluation Report	1			
	Support City decision-making, including BOE meetings and materials	1	1		
Direct Costs**	Travel expenses, conference calls	n/a			$1,000
Phase 1 Subtotal				**480**	**$85,000**
Phase 2					

Task	Activity	Task Owner*		NAM Effort	
		NAM	COPS	Hours	Est. Cost
Contract Negotiations	Develop negotiation strategies	1	1	112	$19,600
	Identify cost drivers and other scope issues in need of negotiating	1	1		
	Participate in negotiations meetings	1	1		
	Develop and/or review contract modifications	1	1		
	Support City decision-making, including BOE meetings and materials	1	1		
Project Management	PM meetings	2	1	96	$16,800
	Status reports/dashboards/metrics		1		
	Schedule review/management		1		
	Respond to RFIs (techincal issues by NAM, all others by KCCD)	2	1		
	Stakeholder communications	2	1		
	Document management	1			
	Contract administration	2	1		
	Contract submittal review and tracking (non-design)	1			
Design Review	Review appropriate design documentation at critical phases of design	1	2	224	$39,200
	Validate future load estimates to ensure appropriate system size	1			
	Validate design documentation conforms with contract/RFP	1			
	Ensure design is reviewed by appropriate City personnel and approved by the City	2	1		
	Ensure regulatory requirements are met and Contractor obtains all necessary approvals and permits (including DSA, fire department, and utility)	1			
	Validate updates to PV system performance with economic modeling	1			
	Ensure that all industry standards for PV systems are met, including UL, IEEE and NEC and that documentation is provided regarding factory bench testing, as required	1			
	Advise on value engineering opportunities, product substitution issues, and Change Orders	1	2		
	Ensure that design and subsequent project phases will meet overall project schedule and budget requirements	1	1		
	Record and track all open design issues using NAM-developed tools. Ensure all design issues are resolved and closed-out prior to recommending approval	1			
	Facilitate design review meetings for each phase of design. Participate in design development meetings with solar provider, if necessary	1	2		
Technical Oversight During Construction	Provide technical and engineering review and validation of contractor submittals, requests for substitution, and technical questions	1	2	116	$20,300
	Inspection of solar and electrical field work, with a focus on the DC side of each system	1	2		
	Monitor workmanship and quality	2	1		
	Ensure contract requirements are met		1		
	Ensure DSA requirements are met		1		
	Ensure systems are installed per approved design		1		
	Review of schedules, status reports, and forecasts		1		
	Respond to RFIs (techincal issues by NAM, all others by KCCD)	1	2		
	Participate in construction, project management, and Owner's meetings where appropriate	2	1		
	Advise on value engineering opportunities	1	1		
	Assist with PV-specific communications and stakeholder outreach	2	1		

Task	Activity	Task Owner*		NAM Effort	
		NAM	COPS	Hours	Est. Cost
Construction Management	Oversight of construction work in the field		1	0	$0
	Coordination of construction-related issues (delivery and storage of materials, work crew logistics)		1		
	Regular communications with City stakeholders (school administration, faculty, students other affected parties)		1		
	Inspection and acceptance of sign-off of construction work		1		
	Creation of project schedules and progress reports		1		
	Ensure that campus operational impacts from construction are minimized and comply with contract requirements		1		
QA, System Testing, and Commissioning	Participate in QC and permit inspections to verify all inspection and permits are properly collected		1	116	$20,300
	Ensure all proposed PG&E rate switches occur as planned	2	1		
	Update system production and economic models based on final installation configuration	1			
	Review and approve acceptance testing and performance test plans and reports	1			
	Technical oversight, observation, and inspection to ensure proper testing of solar plant, DAS, and monitoring system	1			
	Monitoring of production data during proving period	1			
Project Closeout	Review of as-built documentation, drawings, test reports, and certifications		1	60	$10,500
	Advise on punch-list completion for solar PV activities	2	1		
	Provide final project acceptance recommendations	2	1		
	Assist with closeout		1		
	Assist with interconnection process	1			
Performance Management	System monitoring solution testing and validation	1		76	$13,300
	EMS-PV monitoring data interface testing and troubleshooting				
	Reconciliation of performance monitoring, PG&E bills and CSI				
	Validate canned report suite and ad hoc reporting capabilities	1			
Direct Costs**	Travel expenses, conference calls	n/a			$1,000
Phase 2 Subtotal				**800**	**$141,000**
TOTAL* **				**1,280**	**$226,000**

**1 = lead role; 2 = support role*

***Direct Costs to be billed at cost without markup*

****Includes NAM sub consultants*