City of Santa Fe, New Mexico

memo

To: **Buckman Direct Diversion Board**

Via: **Bob Mulvey, Buckman Direct Diversion Facilities Manager**

From: **Dale Lyons, Water Resource Coordinator**

Date: **June 26, 2012**

Re: **Request for approval to conduct design-build procurement of integrated solar development services for the Buckman Direct Diversion Booster Station 2A Solar Project**

Issue and Item

The purpose of this memo is to request approval to construct a 1 megawatt photovoltaic solar power system at BDD Booster Station 2A (BS2A) using the Design-Build (DB) project delivery method. As per the Purchasing Manual requirements (Section 23B), this memo provides the relevant project background and rational for a recommendation to conduct a design-build procurement of integrated solar development services for the proposed project. Appendix A to this memo summarizes the information required by Section 23B.

Discussion

Design-Build procurement is particularly well-suited for a project of this nature. As distributed generation renewable energy projects become increasingly viable and cost-competitive with conventional energy sources, several regional and national companies have emerged offering fully integrated solar development services. Private-sector firms have established business models and strategic partnerships to expediently design and construct quality photovoltaic facilities. Typical comprehensive services include environmental permitting, design, construction, electric utility interconnection, and "one stop" construction management. These specialized "niche" companies have developed "full service" approaches with proven advantages over traditional Design-Bid-Build methods.

The Design-Build approach allows the City to effectively align its procurement process with the solar market. Design-Build allows the City to optimize resources through higher quality deliverables, improved delivery times, and enhanced system performance. Moreover, as a public agency experienced in Design-Build, the City of Santa Fe Water Division is uniquely poised to realize the benefits of the collaborative, team-oriented processes that characterize successful Design Build projects.

Given our knowledge of the photovoltaic market, and our in-house experience and expertise, Design-Build represents a sound and rational approach for building the BS2A photovoltaic system.

Required Approvals

Section 23B of the City's Purchasing Manual requires that prior to advertisement, design-build procurements must be approved by the Purchasing Director, the City Manager and the City's Governing Body. Because the proposed project will become part of the BDD facility, it follows that the design-build procurement will also need to be approved by the BDD Board. As per the Purchasing Manual requirements, this memo provides the relevant project background and rational for a recommendation to conduct a design-build procurement of integrated solar development services for the proposed project.

Recommendation

Staff recommends approval to design and construct the BS2A photovoltaic system using the Design-Build delivery method.

Appendix A
Information Required by City of Santa Fe Purchasing Manual Section 23B

1. Summary of project:

a. Description of project, goals and requirements.

On March 14th of 2011, Water Division staff submitted a project interest form to the New Mexico Finance Authority (NMFA) requesting up to $5 million in Drinking Water Revolving Fund (DSRF) funding to build a 1mW solar photovoltaic (PV) project within the BDD system at the Booster Station 2A facility, which relays water from the Rio Grange diversion site to the BDD water treatment plant. After analysis of the current energy consumption at this facility, it has been determined that constructing a net-metered 1mW solar plant at this site would provide a significant benefit to the BDD by reducing energy costs, generating REC revenue and reducing reliance on conventional, carbon intensive energy sources. On February 24th, 2012, the NMFA Board approved the City's funding request, contingent providing necessary documentation and funding requirements. For reference, the NMFA approval letter is attached to this memo.

The proposed solar project will be nearly identical to two existing 1mW solar projects developed by third-party solar companies through power-purchase agreements at the BDD water treatment plant and the City's waster water treatment plant. Like those solar projects which have now been operating for over a year, the proposed solar project at the BDD Booster Station 2A facility will occupy approximately seven acres of land administered by the BLM, for which the City has initiated modification of an existing Right-of-Way agreement.

Aerial Photograph of Booster Station 2A and Proposed PV Project Site

The solar project will consist of approximately 2,500 crystalline photovoltaic (PV) panels mounted on single axis trackers. The proposed solar project will be

net-metered with an existing PNM meter which currently feeds power to the BDD Booster Station 2A, and is expected to generate approximately 2,500 mW hours of electricity per year. The financial benefits of the proposed project are outlined the following table:

BDD Booster 2A Solar Project Financial Projections

Energy consumption and Production	
BDD Booster 2A Average kWh usage/mo (12 months)	411,945.75
Average cost/kWh (on- & off-peak)	0.069416667
BDD Booster 2A Average charge/mo	-$27,168.73
BDD Solar Average kWh output/mo (11 months)	184,891.00
Waste Water Solar Average kWh output/mo (11 months)	212,523.64
Average solar output kWh/mo	198,707.32
BDD Booster 2A Average kWh usage/mo (12 months)	411,945.75
Average solar output kWh/mo	198,707.32
Average remaining billable kWh/mo	213,238.43
Average solar output kWh/mo	198,707.32
Average cost/kWh (on- & off-peak)	0.069416667
Average utility bill savings/mo	$13,793.60

NMFA Loan Funding	
Monthly payment on $2.0 million NMFA Drinking Water Loan	-$10,117.00
($4 million total project cost/award, 50% grant, 50% loan, 2% interest, 20 years)	

Operation and Maintenance	
Insurance cost/mo (Travelers premium $6,000/yr)	-500.00
Power monitoring, system testing and repair/mo ($10,000/yr)	-833.00
Inverter replacement/mo (500kW inverter replacement interval 10-15 years, cost of $0.1/watt)	-277.00
BLM lease fee/mo	-700.00
Total O&M/mo	**-2,310.00**

PNM Renewable Energy Credit (REC) Revenue	
Average solar output kWh/mo	198,707.32
Renewable Energy Credit revenue (REC = **$0.02**/kWh)	**$3,974.15**

Monthly Cash flow	
Average utility bill savings/mo	$13,793.60
Monthly payment on $2 million NMFA Drinking Water Loan	-$10,117.00
O&M	-$2,310.00
REC revenue	$3,974.15
Cash flow/mo	**$5,340.75**

On behalf of the BDD as fiscal manager, the City intends execute a design-build contract with a firm or consortium of firms (developer) for the completion of a net-metered 1mW solar PV system at the BDD Booster Station 2A. The developer shall be responsible for 1) securing a Bureau of Land Management (BLM) right-of-way for the project area, including all necessary environmental permitting; 2) design and specification of the project, including site security; 3) interconnection of the project with PNM; 4) construction of the project; and 5) training BDD staff to operate and maintain the system. Once the system is completed and interconnected with PNM, the BDD Board will own and operate the facility and retain ownership of any Renewable Energy Credits (RECs).

b. Estimated design/engineering costs; and

c. Estimated construction costs.

It is estimated that design/engineering and permitting costs for the proposed project will be approximately 10% of the overall project cost. Based on the current cost of solar components, it is estimated that the entire system, including design/engineering services will cost approximately $4 million. Construction costs for the project are estimated to be $3.6 million.

d. Estimated project schedule.

- Following approval of the design-build procurement for the proposed project in late July, 2012, the procurement can be advertised for a period of one month in August, 2012.
- Selection and contracting of the solar developer can be completed by September, 2012. Design can begin in early November and construction, which will last approximately 4 months, can commence in early December, 2012,.
- Testing can be conducted and electric utility interconnection of the facility can be accomplished by the end of March, 2013.

e. City staff on the design-build team to formulate, evaluate and administer equest for Proposals.

Dale Lyons, Project Manager
Bob Mulvey, BDD Facilities Manager
Rick Carpenter, Water Resources Group Manager
Nick Schiavo, City Energy Coordinator

f. Funding source and amount.

On February 24th, 2012, the NMFA Board approved the City's funding request for up to $5 million in DWSRF financing. It is expected that the total proposed project costs will be approximately $4 million. Because this is a green/energy project, the likely terms of loan agreement will consist of a 50% grant with a 50% loan component, the latter being 2% interest over 20 years.

2. The funding for the design and construction must be fully in place or reasonably expected to be in place for the immediate completion of the design-build project. If not in place or reasonable expected to be in place to complete the design build project without an interim delay, the design should be procured separately under Section 23 and bid when funds are in place under Section 22.

The NMFA funding for the proposed project will be in place by the time the City seeks to request reimbursement for project-related expenses. In fact, project related expenses incurred prior to closing the funding agreement are also reimbursable. Specifically, in the DWSRF Interim Final Rule, dated Monday, August 7, 2000, Federal Register Vol. 65, No. 152, Rules and Regulations:

> "Section VII. Major Matters in This Rule
> E. Inclusion of Eligible Project Reimbursement Costs Within Loans (40 CFR 35.3525(a)(2))
>
> .....a final policy was published in the Federal Register (64 FR 1802) on January 12, 1999. The final policy stated that a project (for a privately-owned or publicly-owned system) that has been given approval authorization to proceed, or any similar action by the State prior to initiation of construction would be eligible for reimbursement for construction costs incurred after such State action, provided that the project meets all of the requirements of the DWSRF program and certain criteria. Planning and design and associated pre-project costs are eligible for reimbursement regardless of when the costs were incurred."

3. Summary of why it would be in the best interest of the City and the BDDB to use design-build and the reasons for the potential benefits, such as:

a. Significant time savings.

In contrast to a conventional design-bid-build procurement which requires two separate procurements to hire the engineer and the contractor, a single design-build procurement would procure design and construction services at the same time.

b. Higher quality realized through designs tailored to contractor capability, designer and builder work together to enhance the capabilities and methods of each, and/or combined expertise of contractor with designer to maximize potential benefits.

Solar developers/integrators frequently view their designs as proprietary and also have exclusive teaming/supply arrangements with contractors and manufacturers. In specifying the various components comprising the solar system, an integrator would consider more than system requirements but also best available prices from suppliers as well as their contractor's familiarity with installation. For these reasons, solar projects developed by an integrator will likely be delivered at a lower overall price compared to projects where one firm designs a generic solar system and other firms construct the project.

c. Less impact on the public with the use of expedited construction processes.

A design-build procurement is not expected to have any negative impact on the public.

d. Unusual or unique requirements that could be effectively addressed by design-build.

The design-build approach will allow solar integrators to utilize exclusive teaming/supply arrangements with contractors and manufacturers, potentially yielding a lower cost final product.

e. Specialty skills needed for design or construction.

The design-build approach will allow solar integrators to utilize exclusive teaming/supply arrangements with contractors and manufacturers, where as an engineer under performing design services under a conventional design-bid-build procurement would not.

f. Reduction of total costs; and

g. Best value solution with value engineering

In specifying the various components comprising the solar system, an integrator would consider more than system requirements but also best available prices from suppliers as well as their contractor's familiarity with installation. For these reasons, solar projects developed by an integrator will likely be delivered at a lower overall price compared to projects where one firm designs a generic solar system and other firms construct the project.

4. Summary of potential risks or problems due to using design-build for specific project and mitigation solutions.

One potential risk of developing the proposed project under a design-build procurement is that the time required to obtain the necessary approvals will result in a delayed project completion relative to conventional procurement. To partially mitigate this risk, approval for design-build procurement can be sought from the BDD Board and the City Council concurrently.

While it isn't precisely a risk to the project, a design-build approach will likely give a cost advantage to larger, non-local solar integrator firms over smaller, local firms whom, because of their typical project sizes, don't have exclusive arrangements with contractors or manufacturers. It is important to note, however, that because this project is federally funded, local preference provisions are not allowed.

5. Capability of City staff (with consultant, as applicable) to effectively administer and manage the design-build project. Statement as to who will ultimately be responsible.

Water Division staff has managed the $215 million design-build BDD project to completion. Water Division staff has also managed a similar 1 mW solar facility as well as a complex hydroelectric project. The City's Energy Specialist, Nick Schiavo, has overseen numerous solar projects constructed on City facilities. With the support of the BDD Facilities Manager, Bob Mulvey, who has managed multiple water and wastewater construction projects and expansions, the proposed management team is well positioned to successfully procure design-build services and oversee completion of a high-quality solar facility at the BDD Booster Station 2A.

6. If approved by the Purchasing Director, the recommendation shall be reviewed by the City Manager. If approved by the City Manager, the proposed use of design-build shall be submitted to the appropriate City committee(s) and the City Council for concept approval to proceed with the procurement process under design-build.