Buckman Direct Diversion Project

A joint regional project of the City of Santa Fe and Santa Fe County to build a reliable and sustainable water supply.

MEMORANDUM

Date: May 28, 2013

To: Buckman Direct Diversion Board

Via: Nick Schiavo, Interim Water Division and Public Utility Director NSA

Via: Rick Carpenter, Water Resources and Conservation Group Manager RC

From: Dale Lyons, Water Resource Coordinator DL

Subject: Status update for the BDD Booster Station 2A Solar Project

BACKGROUND

The BDD Board approved a design-build contract with Bradbury Stamm (teamed with Positive Energy) in the amount of $4,420,2010 on March 6th, 2013, to develop a 2.016 megawatt (MW) solar photovoltaic system on BLM land adjacent to Booster Station 2A. On March 6th, 2013, the BDD Board also approved a contract with Smith Engineering in the amount of $177,000 for project management services.

Since the BDD Board's approval, the contractor, the construction manager, and City Water Division and BDD staff have been engaged system design, BLM permitting, and PNM interconnection approval of the system.

As per the contract requirements, contractor performed the system size optimization analysis and determined that maximum financial benefit would be derived from the largest system that could be installed within the EPA Drinking Water SRF subsidized loan budget ($5M). The design for the nominal 2MW system has been completed and the Interconnection Application submitted to PNM, as per PNM's requirements. Key documents required for the BLM ROW amendment (site legal survey and Plan of Development) have been completed and submitted including the environmental review, site survey and technical memo.

On May 20th, PNM has deemed the Interconnection Application complete and the REC has been reserved for the project at $0.02 for 1MW and $0.0153 for 1MW. The lower REC rate indicates that the $0.02 REC was fully allocated and the second MW received a blended REC rate. In the eight remaining years in PNM's REC incentive program, the

anticipated REC revenue for the project will be approximately $100,000 to 200,000, depending on the future increase in on-peak energy usage at the booster station. Again, depending on the future increase in on-peak energy usage at the booster station, the 30-year cash flow (including energy cost savings, REC revenue, financing costs, BLM lease fees and O&M costs) is anticipated to be from $1.4M to $4.5M.

Recent Project Milestones:

- Contract executed for design and installation contractor
- Contract executed for construction manager
- Site survey completed and submitted to BLM
- PV system design and PNM Interconnection Application approved by BDD
- Interconnection application submitted to PNM
- Technical Memo/Preliminary Engineering Report (PER) submitted to NMFA
- PNM Interconnection application deemed complete and RECs assigned

In addition to the attached project schedule provided by the contractor, below is a summary of recent project meetings.

Project Meetings	Date	Attendees	Key Results
BDD BS2A PV Project Deliverables	2/11/2013	City of Santa Fe, Bradbury Stamm, Positive Energy Solar	Identified key deliverables and timeframes.
BDD Operations Discovery Meeting	2/15/2013	City of Santa Fe, BDD Operations, Bradbury Stamm, Positive Energy Solar,	Clarified that electricity from both meters at BS2A are used equally; Understood long range plans for pumping at peak times.
PNM Initial Application Comments	4/16/2013	Positive Energy Solar, PNM	PNM requested number of changes to the drawings, mainly labeling and format.
BDD BS2A PV Project Kickoff	4/17/2013	City of Santa Fe, Bradbury Stamm, Positive Energy Solar, Smith Engineering	Construction Manager, Smith Engineering, and Construction contractors Bradbury Stamm and Positive Energy review project plan.

BDD BS2A PV Project BLM ROW	4/19/2013	City of Santa Fe, Bradbury Stamm, Positive Energy Solar, Smith Engineering, BLM	Identified final steps/requirements for BLM ROW.

2/27/2013

The City of Santa Fe BDD - 2MW - FINAL PRICING

	2MW Best & Final Offer	2MW-Fcst Demand	2MW - Current Demand
Major Assumptions:	Fixed - ReneSola	Fixed - ReneSola	Fixed - ReneSola
System Size	2016 MW	2016 MW	2016 MW
Output per Year in kWh Year1	3,384,919	3,384,919	3,384,919
Value of output in Year One	$ 206,788	$ 263,390	$ 179,554
Utility Inflation Rate (Note 1)	3.00%	3.00%	3.00%
Up-time operation per year	99.04%	99.04%	99.04%
Module degradation per year	0.007%	0.007%	0.007%
kWh shift from off-peak to Peak / year	1,185,591	839,540	0
Savings :			
Utility savings	$ 5,970,508	$ 8,685,939	$ 5,554,429
REC	215,091	147,963	100,965
Total	6,185,599	8,833,902	5,655,394
Summary of Costs:			
Total investment	$ 4,249,000	$ 4,249,000	$ 4,249,000
Less Grant	(2,124,500)	(2,124,500)	(2,124,500)
Net Investment	2,124,500	2,124,500	2,124,500
Operating Costs	1,664,616	1,664,619	1,664,619
Total Costs	3,789,116	3,789,119	3,789,119
Net Savings Over Costs	2,396,483	5,044,783	1,866,275
Financing Costs	454,898	454,898	454,898
Net 30 year cash flow	$ 1,941,585	$ 4,589,886	$ 1,411,377
30 Year Rate Analysis			
Life cycle savings per kWh	$ 0.0698	$ 0.0997	$ 0.0638
Life cycle cost (include financing) per kWh	0.0479	0.0479	0.0464
Net Savings per kWh	$ 0.0219	$ 0.0518	$ 0.0174
Land area used	5.82	5.82	5.82
30 year kWh	88,644,253	88,644,253	88,644,253
Cost per Watt	**$ 2.11**	**$ 2.11**	$ 2.11
Net Cost per kWh	$ 0.024	$ 0.024	$ 0.024

Excess solar peak production (total excess hedge)	1,039,116
Excess in millions of gallons based on FY11/12 rates (1)	348,013,842
Percentage of excess gallons to FY13/FY14 total gallons	16%

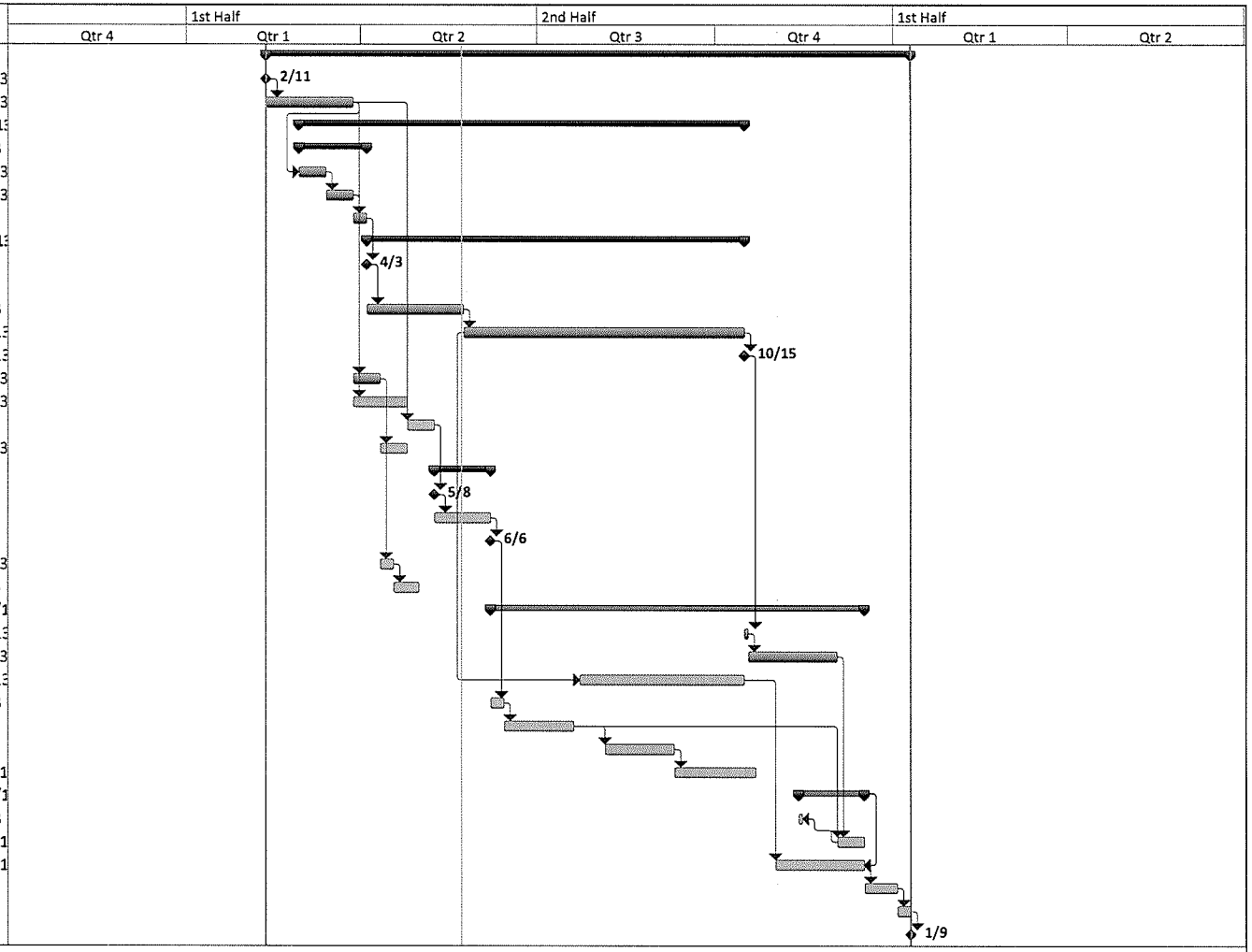
(1) BDD 2A - 5,410,173 kWh in `11/`12 for 1,811,940,000 Finished Gallons, matches Gary's figure of 2956kWh pe

(2) Costs assume 1/2 system on each meter except 1.75MW which has 4 inverters on one meter and 3 invertes

FINAL PRICING

Final kW	2016 MW	2016 MW
Price	2.11	2.11
Total Price	$ 4,249,000	$ 4,249,000
Extended Warranty	$ 134,125	$ 134,125
Fencing change	$ 37,085	$ 37,085
Final Price	$ 4,420,210	$ 4,420,210

ID	Task Name	Duration	Start	Finish
1	**BDD BS2A PV Project**	**231 days**	**Mon 2/11/13**	**Thu 1/9/14**
2	Notice of Award	0 days	Mon 2/11/13	Mon 2/11/13
3	Contract	33 days	Mon 2/11/13	Wed 3/27/13
4	**Preconstruction**	**161 days**	**Thu 2/28/13**	**Tue 10/15/1**
5	**PV Design Finalization**	**25 days**	**Thu 2/28/13**	**Wed 4/3/13**
6	Sizing Decision	10 days	Thu 2/28/13	Wed 3/13/13
7	Application Documents	10 days	Thu 3/14/13	Wed 3/27/13
8	Electrical Engineering Stamp	5 days	Thu 3/28/13	Wed 4/3/13
9	**PNM Approval**	**136 days**	**Wed 4/3/13**	**Tue 10/15/1**
10	Submit PNM Interconnect Application	0 days	Wed 4/3/13	Wed 4/3/13
11	PNM Review	36 days	Thu 4/4/13	Thu 5/23/13
12	PNM Supplemental Review	100 days	Fri 5/24/13	Tue 10/15/1
13	Interconnection Approved	0 days	Tue 10/15/13	Tue 10/15/1
14	Survey/Topography	10 days	Thu 3/28/13	Wed 4/10/13
15	Design Security	20 days	Thu 3/28/13	Wed 4/24/13
16	Site Development Plan	10 days	Thu 4/25/13	Wed 5/8/13
17	Develop PER	10 days	Thu 4/11/13	Wed 4/24/13
18	**CID Permitting**	**20 days**	**Wed 5/8/13**	**Thu 6/6/13**
19	CID Permit - Submit	0 days	Wed 5/8/13	Wed 5/8/13
20	CID Plan Review	20 days	Thu 5/9/13	Thu 6/6/13
21	CID Plan Approval	0 days	Thu 6/6/13	Thu 6/6/13
22	SWPPP Prep	5 days	Thu 4/11/13	Wed 4/17/13
23	SWPPP E-NOI	9 days	Thu 4/18/13	Tue 4/30/13
24	**Construction**	**133 days**	**Fri 6/7/13**	**Mon 12/16/1**
25	PV Eqpt - Order Components	2 days	Wed 10/16/1	Thu 10/17/1
26	PV Eqpt - Lead Time	30 days	Fri 10/18/13	Mon 12/2/13
27	Transformer - Lead Time	60 days	Tue 7/23/13	Tue 10/15/1
28	Sitework - Access and Clearing	5 days	Fri 6/7/13	Thu 6/13/13
29	Fence	25 days	Fri 6/14/13	Fri 7/19/13
30	Sitework - Trenching and Pads	25 days	Mon 8/5/13	Mon 9/9/13
31	Security Installation	30 days	Tue 9/10/13	Mon 10/21/1
32	**PV Installation**	**22 days**	**Wed 11/13/1**	**Mon 12/16/1**
33	Survey post locations	2 days	Wed 11/13/1	Fri 11/15/13
34	Drive Posts	10 days	Tue 12/3/13	Mon 12/16/1
35	Electrical/Interconnect	30 days	Fri 11/1/13	Mon 12/16/1
36	Commissioning	10 days	Tue 12/17/13	Thu 1/2/14
37	Training	5 days	Fri 1/3/14	Thu 1/9/14
38	Project Completion	0 days	Thu 1/9/14	Thu 1/9/14



Project: BDD BS2A PV Project 5_2
Date: Thu 5/23/13

Task		Project Summary		Inactive Milestone		Manual Summary Rollup		Deadline	
Split		External Tasks		Inactive Summary		Manual Summary		Progress	
Milestone		External Milestone		Manual Task		Start-only			
Summary		Inactive Task		Duration-only		Finish-only			