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ARIZONA SOLAR ONE

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January 30, 2013

Steven Olea
Director, Utilities Division
Arizona Corporation Commission
1200 W. Washington St.
Phoenix, Arizona 85007

AZ CORP COMMISSION
DOCKET CONTROL

Subject: Abengoa Solar Inc. – Ten Year Plan Filing

Docket No.: E-00000D-11-0017
13-0002
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Dear Mr. Olea,

In conformance with A.R.S. § 40-360.02 and pursuant to the Arizona Corporation Commission's Decision No. 63876 (July 25, 2001), Arizona Solar One, LLC ("Arizona Solar One") is pleased to submit the 2012-2021 Ten Year Plan. As previously mentioned in our 2011-2020 Ten Year Plan, Arizona Solar One is a special purpose entity created to develop, construct, and operate the 280 MW Solana Generating Station near Gila Bend, Arizona, and is a wholly owned subsidiary of Abengoa Solar Inc. Arizona Solar One is currently constructing the 280 MW Solana Solar Generating Facility near Gila Bend, AZ, in which the transmission line that will exclusively connect the generating station with "Panda Sub Station," an APS facility, has been successfully finished in July 2012. An update of the generating station project and its associated transmission line are further discussed in this filing.

If you have questions or need further information regarding this filing, please contact me at 480-705-0028.

Sincerely,

Emiliano Garcia Sanz
Solana – Project Director
Arizona Solar One LLC

cc: Docket Control

Arizona Corporation Commission
DOCKETED
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2013 – 2022 Ten Year Plan

Submitted By:

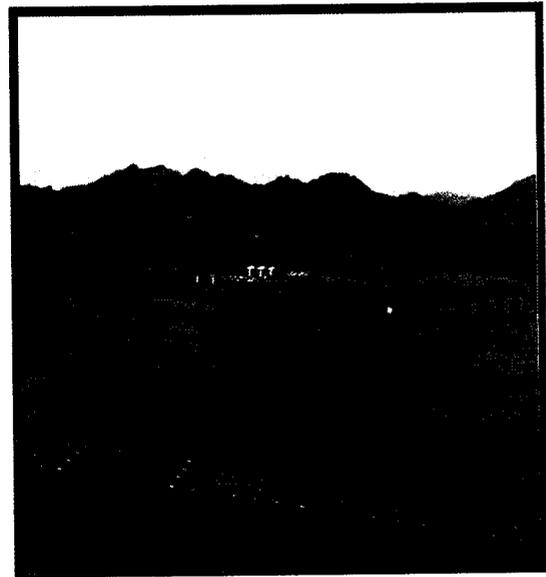
January 2013

ARIZONA SOLAR ONE, LLC



Submitted to:

The Arizona Corporation Commission
Pursuant to ARS §40-360.02



Technical Contact:

Enrique Guillen
Solana Compliance Manager
Abengoa Solar Inc.
4505 E. Chandler Blvd., Suite 120
Phoenix, AZ 85048

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ARIZONA SOLAR ONE, LLC

2013 – 2022
Ten Year Plan

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ARIZONA SOLAR ONE, LLC
2013 – 2022
Ten Year Plan

General Information, Summary, and Overview

In conformance with A.R.S. § 40-360.02, Arizona Solar One, LLC (“Arizona Solar One”) is pleased to submit this Ten Year Plan corresponding to the period 2013 - 2022. Arizona Solar One is a special purpose entity created to develop, construct, and operate the 280 MW Solana Generating Station near Gila Bend, Arizona, and is a wholly owned subsidiary of Abengoa Solar Inc. (“Abengoa Solar”). Abengoa Solar is currently constructing the 280 MW Solana Solar Generating Facility near Gila Bend, AZ. That project and its associated transmission line are further discussed in this filing.

A.R.S. § 40-360.02 requires that:

“Every person contemplating construction of any transmission line within the state during any ten year period shall file a ten year plan with the Commission on or before January 31 of each year.”

Pursuant to those requirements, Arizona Solar One submits this document, which provides further details about its only planned transmission facility as of January 31, 2013. That planned facility is a 230 kV overhead transmission line that will span approximately 20.2 miles between a substation located at the Solana generating station and APS’s Panda¹ 230 kV substation. The transmission line will be a dedicated generator intertie (“Gen-Tie”) line, delivering power directly to APS’s transmission system.

Also pursuant to A.R.S. § 40-360.02, Abengoa Solar Inc, on behalf of Arizona Solar One, filed with the ACC on July 17, 2008 a “90 Day” Solana Project Plan, which described in detail the location, operation date, average and maximum power output, capacity factor, and power flow and stability analysis for the Solana Generating Station.

Finally, also pursuant to A.R.S. § 40-360.02, this filing includes technical study results for the planned Solana 230 kV Gen-Tie line.

¹ The APS Panda Substation is referred to in the APS interconnection studies as the “Gila River 230 kV Substation”. Although the actual APS point of delivery is the Panda Substation, the interconnection studies refer to the station as Gila River, known as a major hub in the APS bulk power transmission system. Exhibit 2 of this document references the Gila River Facility, in the interest of conformance with the APS Facilities Study.

Transmission Project Description

About Solana

Solana Generating Facility is located approximately 70 miles southwest of Phoenix and eight miles west of the Town of Gila Bend, Arizona. The Solana site is located on 2,339 acres of private land north of Interstate 8 (I-8), west of Painted Rock Dam Road, south of Powerline Road and east of Bureau of Land Management ("BLM") lands within unincorporated Maricopa County. Solana will use Concentrating Solar Power ("CSP") technology with storage capability. The technology uses parabolic mirrors to focus the sun's heat on receiver tubes containing heat transfer fluid. The fluid can reach a temperature of 735 degrees Fahrenheit. To produce electricity, the hot fluid transfers its heat energy to water, creating steam for two 140 MW conventional steam turbines. The heat energy in the fluid also can be diverted to molten salt storage tanks that can create steam for energy production up to six hours after sunset, or through cloudy periods. Solana will use conventional cooling towers and evaporation ponds. The source of water will be groundwater supplied through process wells to be located on the project site.

Updated Information on the Configuration of the Solana Gen-Tie Line

On December 5th, 2008, the ACC affirmed a recommendation by the Arizona Power Plant and Transmission Line Siting Committee and thereby granted individual Certificates of Environmental Compatibility ("CECs") for both the Solana Generating Facility and the 230 kV Gen-Tie line (see Docket Numbers L-00000GG-08-0407-00139 - Decision No. 70638, and L-00000GG-08-0407-00140 - Decision No. 70639).

Originally the size of the Gen-Tie line was described as a single circuit 230 kV line having a rated capacity of 560 MVA, with a configuration of steel monopole structures, a single 954 kcmil ACSR conductor, and structural capacity for a future second (double) circuit.

As a result of comprehensive technical studies during the first semester of 2011 the size of the Gen-Tie was upgraded. Pursuant to A.R.S. § 40-252 Arizona Solar One introduced in September 29, 2011 an application to amend the Arizona Corporation Commission's Decision No. 70639. Such amendment comprised a request, first, to allow Arizona Solar One to place a second set of conductors on the double circuit towers that will increase the efficiency and reliability of the Gen-Tie, and, second, to allow Arizona Solar One to use four (4) H-frame transmission structures rather than monopole in particular locations, facilitating a crossing underneath existing APS's 230 kV Panda-Gila Bend transmission line, and to span existing wastewater treatment ponds. Letters of support from Paloma Irrigation & Drainage District, Sierra Club – Grand Canyon Chapter and from town of Gila

Bend were obtained and duly docketed before the Arizona Corporation Commission. Detail information can be found in Docket L-00000GG-08-0407-00139. On November 17, 2011, the Arizona Corporation Commission issued the decision No. 72680 authorizing Arizona Solar One to use the proposed four H-frame transmission structures and to construct the line with the use of a double set of conductors, hence modifying decision No 70639 of December 11, 2008.

The actual size and configuration of the Gen-Tie line is as follows:

- Voltage: 230 kV
- Configuration: Mostly steel monopole structures, with four H-frame transmission structures in particular locations, and the use of a double 954 kcmil ACSR conductor.
- Rated Capacity: 990A (Primary Amps)

Route of the Solana Gen-Tie Line

The certificated route for the Solana Gen-tie originates at a 230 kV substation now under construction within the Solana site. The Solana Gen-tie would begin at the center of Solana site, proceeding east to the edge of the Solana site at Painted Rock Dam Road, then north in an alignment on Painted Rock Dam Road to Watermelon Road. At Watermelon Road, the route would turn east and continue in an alignment adjacent to Watermelon Road all the way to the Gila River Substation. The total length of this route is approximately 20.2 miles.

General vicinity maps and a map of the Certificated Route for the Solana Gen-Tie line are shown in Figures 1 and 2 below.

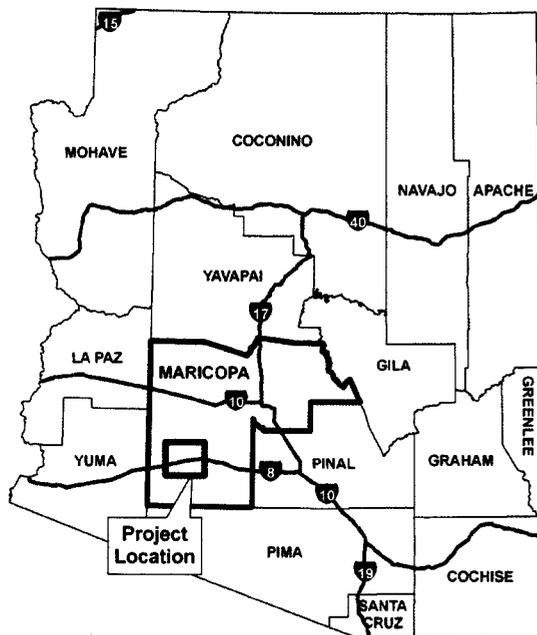


Figure 1. General Vicinity Map

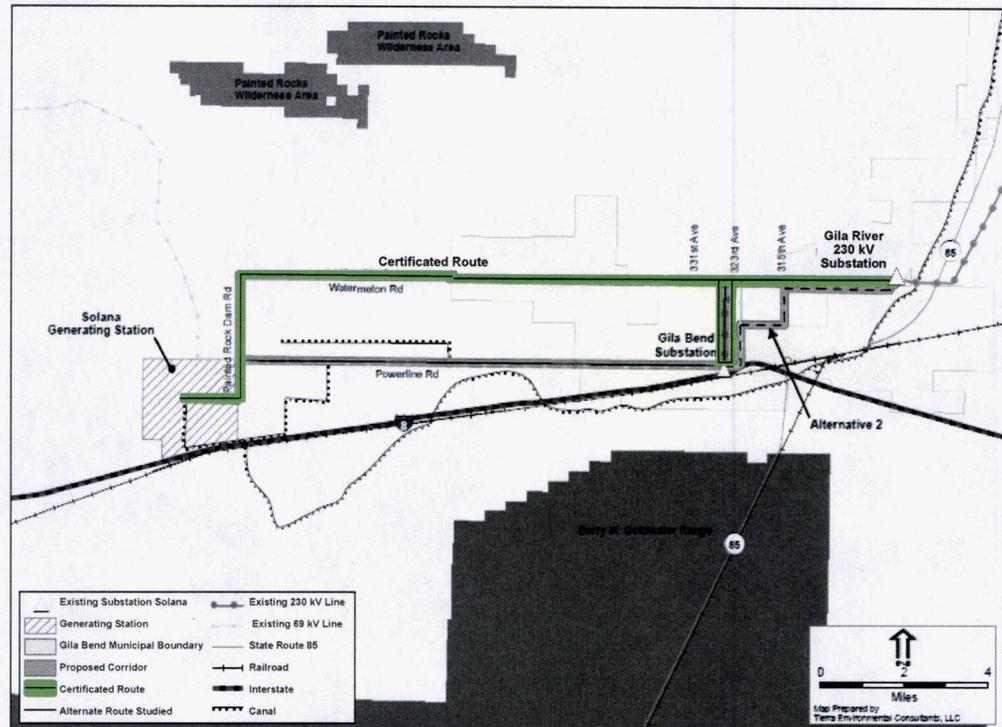


Figure 2. Transmission Route Map

At the time that the Solana Gen-Tie CEC was granted, interconnection studies being conducted by APS were not yet complete, and study analysts then contemplated a possible need for Solana to interconnect with (loop in and out of) the APS Gila Bend Substation in addition to terminating at the existing APS Gila River 230 kV Substation. Thus the CEC authorized that additional loop to and from Gila Bend Substation. Upon completion of the interconnection studies, however, study results indicated that the loop was unnecessary. As a result, the planned route will proceed eastward along Watermelon Road without interconnection to the Gila Bend Substation. Figure 2 depicts the complete certificated route, with the authorized loop to and from the APS Gila Bend 69kV Substation. A detailed Project Description Sheet is enclosed as Exhibit 1 of this Plan.

The final Large Generator Interconnection Agreement ("LGIA") between APS and Arizona Solar One LLC was officially executed and accepted by the Federal Energy Regulatory Commission ("FERC") on August 31, 2010.

Further, effective October 11, 2010, Arizona Solar One received FERC approval of its Market Based Rate ("MBR") authority as a Category I seller, and as of December 1, 2010, pursuant to the Public Utility Holding Company Act of 2005 ("PUHCA 2005"), Arizona Solar One received FERC confirmation of its status as an Exempt Wholesale Generator ("EWG").

Purpose to be Served by the Planned Transmission Line

The purpose to be served by the 230kV Solana Gen Tie Project is to interconnect the Solana Generating Station to the regional transmission grid at the existing APS Panda Substation.

The plant will in turn produce electricity generated by solar thermal energy, which is a renewable resource. Arizona Solar One has a 30-year contract with APS for purchase of all output of the plant. This will provide APS with an energy resource to meet local and regional demand for renewable energy. The Arizona Corporation Commission has implemented Renewable Energy standards for regulated utilities, which require the utilities to acquire increasing amounts of renewable energy, up to fifteen percent of their delivered energy by 2025. The output of the plant will assist APS to meet this requirement, and to enable APS to meet its increasing demand. An additional purpose served by the plant is to provide diversity of fuel supply in the production of electricity. Access to energy produced by renewable resources reduces dependence on fossil fuels, which are subject to market price volatility.

Estimated Date of Operation

The 230 kV Solana Gen-Tie line has a planned in-service date on or before June 2013.

Power Flow and Stability Analysis

In February 2008, Abengoa Solar filed an interconnection request for the Solana Generating Facility with APS. The interconnection request is for a 280 MW net power injection into APS's transmission system. APS completed a System Impact Study ("SIS") on June 24, 2009 and a Facilities Study on August 19, 2009. Results of the studies indicated that no short-circuit or transient stability problems are anticipated as a result of Solana's interconnection. Abengoa Solar Inc. and APS executed the Large Generator Interconnection Agreement ("LGIA") in July 2010, and FERC formally accepted the filing on August 31, 2010.

The Impact Facilities Study has been performed by APS. It demonstrates the effect of the Solana project on the current Arizona electric transmission system and illustrates the network upgrades that will be required for this project. The study also investigated a variety of interconnection options, and the possibility of the presence of a "senior queued" 110 MW generation project ("Q31") proposed for interconnection at the Gila Bend 69 kV Substation or the Gila River (Panda) 230 kV Substation. The conclusion derived from the SIS and the ensuing Facilities Study is that the proposed Solana Project has no adverse power flow or stability impact on the Arizona transmission system provided that the network upgrades recommended in both studies are completed. In accordance with the LGIA, Abengoa Solar has begun to pay for the completion of those upgrades, expected to be completed by APS in March 2013.

Exhibit 1

Project Description Sheet

Exhibit 1: Project Description Sheet

Solana Generating Station Transmission Intertie

Project Owner / Sponsor:	Arizona Solar One LLC.
Project Description:	Interconnect a new 280 MW Solar Generating Facility to the APS 230 kV "Panda" substation.
Voltage Class:	230kV AC
Facility Rating:	990 A (Primary Amps)
Point of Origin:	Solana Generating Facility (to be operational in 2013).
Point of Termination:	Panda 230 kV substation
Length of Line:	20.2 Miles
Type of Project:	One line generation intertie 230 kV line
Routing:	The Solana generator intertie line will proceed from the new substation within the Solana site and head to the intersection of Painted Rock Dam Road and Powerline Road. The line will proceed north on the Painted Rock Dam Road alignment and then east on Watermelon Road. The Project will end at the existing APS Gila River Substation (Line Siting Case No. 99) located in Section 20, Township 5 South, Range 4 West, Gila Bend, Arizona.
Purpose of Project:	This project is needed to serve APS's growing demand of nearly 900 GW-h per year, and to provide a clean, reliable, and price-stable resource to APS's customers.
Estimated Cost:	Approximately \$15,000,000 (in 2012 Dollars)
Schedule:	
Construction Start Date:	December 20, 2011
Construction Finish Date:	July 07, 2012
Planned In-Service Date:	Summer 2013
Permitting Status:	All permits in place: Certificate of Environmental Compatibility (CEC) granted on December 2008; Amendment of the CEC granted on November 17, 2011; County entitlements completed 2010; ADEQ Construction Permit; RCRA; County Construction Permit; Dust Control Permit; Flood Permit; NOI (Dept. of Agriculture); Owl Removal Permit (Fish & Wildlife); Town of Gila Bend Permit.
CEC Compliance Status:	Construction Mitigation and Restoration Plan docketed on July 22, 2011; Compliance with CEC's Condition 15(a) docketed on November 17, 2011; Compliance with CEC's Condition

15(b) docketed on November 2, 2011; Self Certification Letter docketed on Dec 1, 2011.

The project was executed in accordance with the project plans, budget, permits and regulations, and generally in a safe and secure manner.

No violations or complaints in relation with the construction of the 230 kV Gen-Tie line have been recorded.

Exhibit 2

Impact Facility Study



A subsidiary of Pinnacle West Capital Corporation

Q44 Generation Interconnection

Interconnection Facilities Study

APS Contract No. 52129

By

**Arizona Public Service Company
Transmission Planning**

August 19, 2009
Version 1.5

FACILITIES STUDY Q44 PROPOSED GENERATION

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1. Introduction

APS performed this Generator Interconnection Facilities Study ("FaS") in response to a generator interconnection request by the Interconnection Customer ("Customer"). The Customer is listed in APS's Active Generator Interconnection Queue as queue number 44 and has already completed a System Impact Study. The purpose of the study is to provide cost and construction schedule estimates for the facilities needed to interconnect the Customer's proposed 280 MW solar generation facility ("Q44") located near Gila Bend, Arizona in Maricopa County. The Point of Interconnection ("POI") assumed for the FaS is APS's Panda 230kV switchyard. The proposed in-service date for Q44 to be on-line is by December 2011, but based on the Facilities needed for the interconnection the amount of time needed is approximately 38 months from the time all appropriate written authorization, interconnection agreements, and funding arrangements are in place. Figure 1 shows a general location of Q44. Figure 2 shows a general depiction of the transmission system around Q44's proposed POI.

Figure 1. General Project Location w/Tie Line

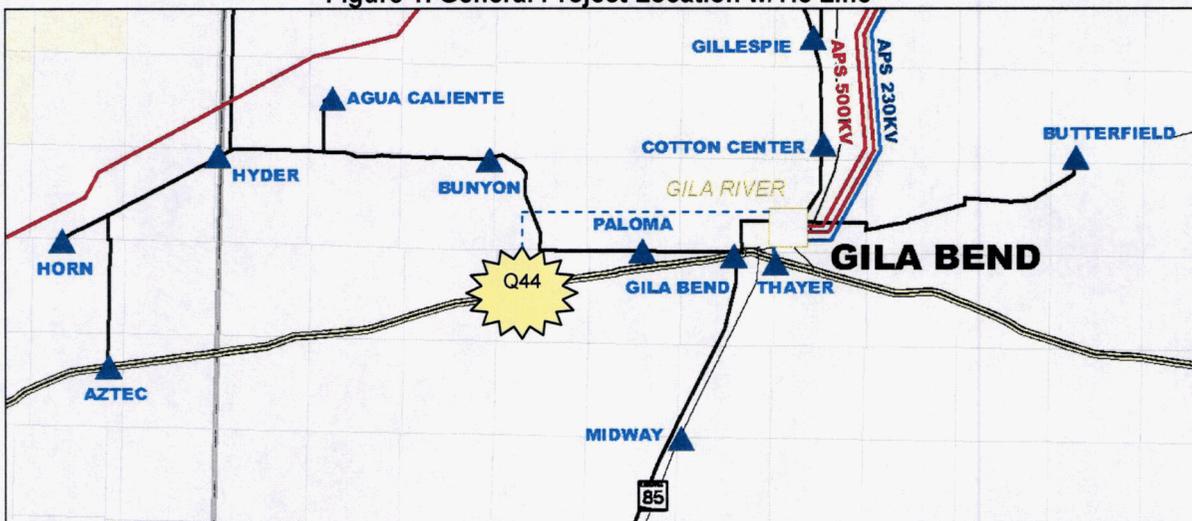
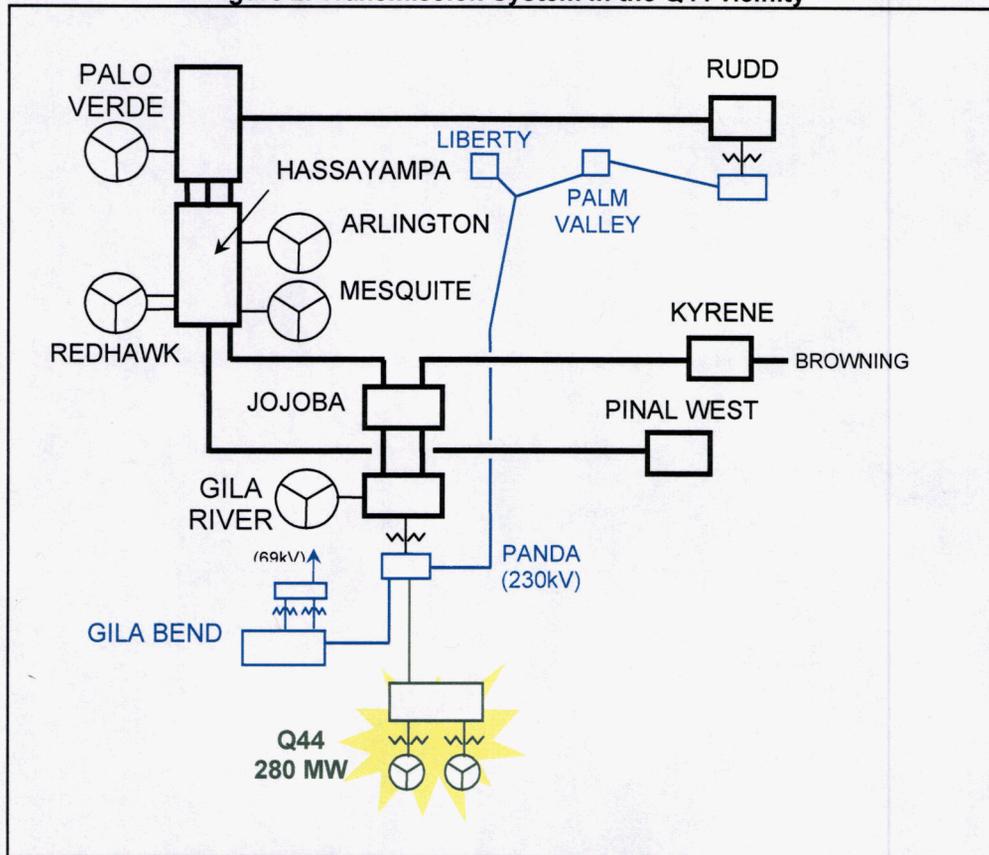


Figure 2. Transmission System in the Q44 vicinity



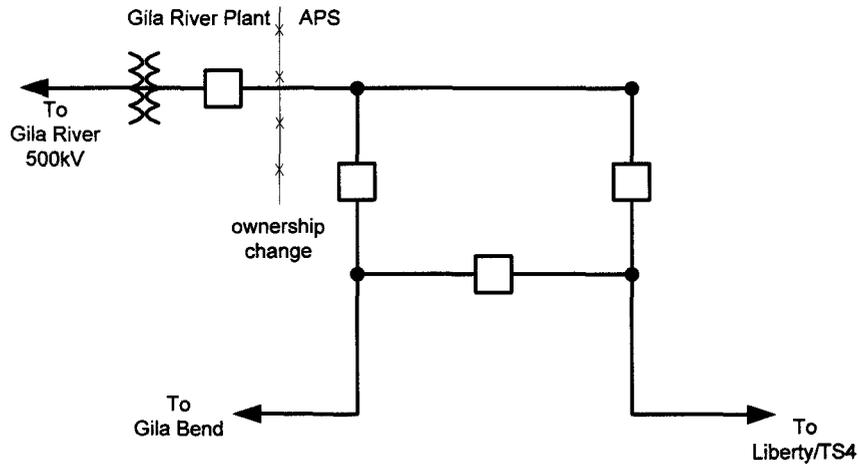
The Interconnection Customer has chosen to interconnect as an Energy Resource. Delivery of the Q44 output beyond the POI would be on an “as-available” basis only. The POI is the Panda 230kV substation. The delivery of the Q44 output would be subject to the firm or non-firm transmission capacity that may be available when a transmission service request is made. APS is the sole owner of the Panda 230kV substation and delivery of the Q44 output could be made to APS at the Panda 230kV substation.

Nothing in this report constitutes an offer of transmission service or confers upon the Interconnection Customer, any right to receive transmission service. APS may not have the Available Transfer Capability (“ATC”) to support the Transmission Service for the interconnection described in this report.

2. Interconnection Facilities

The interconnection facilities required for the Q44 project consist of a new 230kV bay at the Panda substation and realigning the Panda-Liberty 230kV line exit from the Panda substation. Currently the Panda substation is a three breaker ring. The Panda substation is set-up to handle one more termination, to make it a four breaker ring bus. A simple one-line diagram of the existing Panda 230kV substation is shown in **Figure 3**.

Figure 3. Existing Panda 230kV switchyard – Simplified one-line

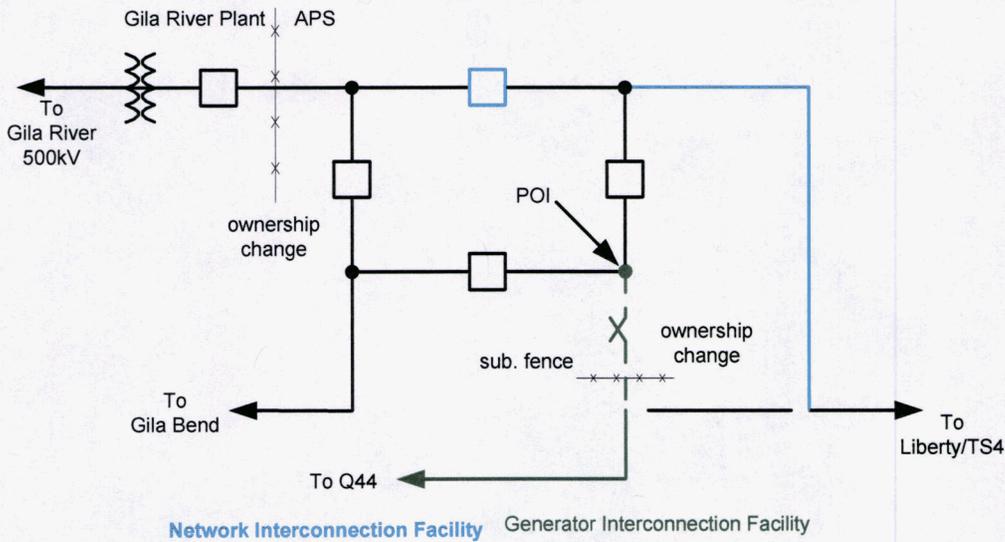


The open bay is located on the north east side of the substation. In-order to avoid the Q44 230kV generator tie line from crossing the Panda-Liberty 230kV line, the plan of service for connecting Q44 into Panda involves moving the termination of the Panda-Liberty 230kV line. This can be seen below in **Figure 4**. Currently that line exits the Panda substation to the south until Watermelon Road. Then the line turns east following the road. The certificated route for the Q44 230kV tie line has the line approaching the Panda substation on the south side of Watermelon Road. At the point where the Q44 tie line reaches the alignment where the Panda-Liberty line exits the Panda substation, the Q44 tie line would utilize this alignment to enter the Panda substation.

The new alignment for the Panda-Liberty line would have it exiting the Panda substation from the east side of the substation, then continuing south to Watermelon Road to pick-up the original Panda-Liberty line. That portion of the line would be constructed to APS standards for new 230kV construction using 1272 ACSR conductor.

Appendix A shows a detailed one-line and physical layout of the Panda 230kV substation after the Q44 interconnection.

Figure 4. Panda 230kV Switchyard Configuration After Q44 Interconnection– Simplified one-line



The estimated cost of the network upgrades at the Panda 230kV substation, described above and shown in light blue in **Figure 4**, are summarized in **Table 1** below. Construction schedule estimates are from the date the Interconnection Customer provides written authorization to proceed, provided all interconnection agreements and funding arrangements are in place. All of the costs described in **Table 1** are network upgrades, as depicted in **Figure 4**.

Table 1. Cost and Construction Time Estimates

Facility	Cost (2009 dollars)	Schedule
Panda 230kV substation additional bay	\$1,465,000	
Relocate 230kV Liberty-Panda line exit	\$561,600	
Total	\$2,026,600	15 months

Additional cost estimate and construction schedule details are provided in Appendix B. The estimates do not include cost and timing that may be involved with the Transmission and Facilities Siting process, if needed.

3. System Reinforcements

The System Impact Study for this project was performed in a cluster study. That cluster study included another Interconnection Customer (project Q31 in the APS queue). The SIS identified two 69kV lines that need to be upgraded if only the Q44 project continued to an LGIA. However, if both projects continued on to an LGIA the SIS identified a third 69kV line that would need to be upgraded. As of the writing of this report only the Q44 project has moved to the Facilities Study¹. Therefore, the system reinforcements identified in this Facilities study are for the two 69kV lines that need to be upgraded.

The SIS identified that the Gila Bend to Butterfield Tap and Butterfield Tap to Cotton Center 69kV lines (hereby referred to as the “Gila Bend-Cotton Center 69kV lines”) need to be upgraded. In-order to

¹ Project Q31 may elect to proceed toward a LGIA after this report is published. An estimate for rebuilding the third 69kV line may be provided at that time.

achieve the ratings necessary to accommodate the interconnection of Q44 the Gila Bend-Cotton Center 69kV lines need to be rebuilt with new structures. The existing lines will need to be removed and new structures built that will be capable of handling 795 ACSS conductor. In some places the current structures have 12kV underbuild. The new structures will be constructed to be capable of handling 12kV underbuild where applicable. The new 69kV lines will be rebuilt in the existing easements from Gila Bend up to Old Highway 80. Along Old Highway 80 the new 69kV line will be constructed along the same general route as the existing 69kV line, however moved into new Rights-of-Way (ROW) which will be outside of the Old Highway 80 ROW, up to the Cotton Center substation.

The estimated cost of the 69kV network upgrades, as described above, are summarized in **Table 2** below. Construction schedule estimates are from the date the Interconnection Customer provides written authorization to proceed, provided all interconnection agreements and funding arrangements are in place. All of the costs described in **Table 2** are network upgrades. Appendix C shows a more detailed breakdown of the cost and schedule estimates for the 69kV upgrades.

Table 2. 69kV Upgrades Cost and Construction Time Estimates

Facility	Cost (2009 dollars)	Schedule
Remove existing 69kV structures and conductor	\$447,965	N/A
APS Project Management & Design	\$127,088	N/A
Gila Bend-Cotton Center 69kV rebuild	\$3,360,238	18 months
12kV underbuild	\$1,517,231	N/A
New 69kV ROW acquisition	\$350,000	24 months
Total	\$5,802,522	32-38 months

4. Q44 230kV Generator Interconnection Line

As part of the Facilities Study, the Interconnection Customer asked APS to provide construction and cost estimates if APS were to construct the 230kV line from the Q44 facility to the Panda 230kV substation.

The 230kV Q44 generator tie line would be approximately 18 miles in length. The estimated cost for APS to construct the line for the Interconnection Customer would be \$25,272,000. Design, equipment procurement, and construction would take approximately 23 months. These estimates are based on the following assumptions:

- Double circuit capable steel monopole, but constructed with single circuit 1272 ACSR conductor
- Following the certificated corridor received by the Interconnection Customer
- Crossing under the existing APS Gila Bend-Panda 230kV line and constructing on the south side of the Water Treatment facility
- Terminating at the Panda substation in the bay currently occupied by the Panda-Liberty line
- Based on 2009 dollars

The estimated cost does not include:

- Land costs (money paid in fee, legal fees, permit costs, etc.)
- ROW preparation (Road building, clearing, etc.)
- Environmental issues (Archeological and Biological studies, 404 issues, dust control, etc.)
- Unforeseen labor or material escalation
- Transmission line siting process
- Substation related materials, labor, or communication ties

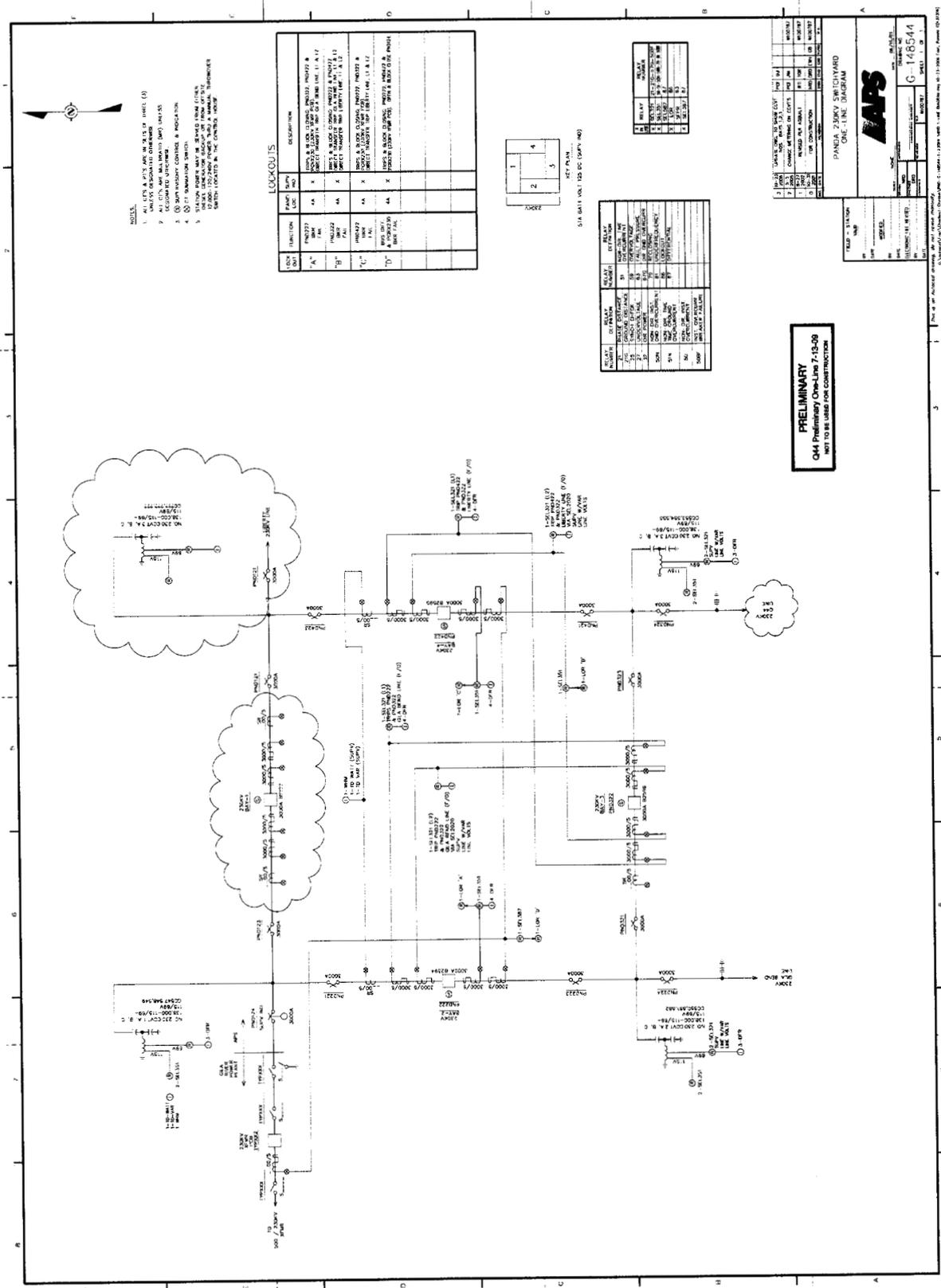
If the line is to be owned by the Interconnection Customer it is assumed that ROW acquisition would be done by the Interconnection Customer. However, an estimate for ROW acquisition is provided if APS were to acquire the ROW.

The APS estimate for acquiring the needed ROW for constructing the Q44 Generator Interconnection line is dependant upon where specifically within the certificated corridor the line is constructed. The estimate varies from \$2,015,000 to \$2,095,000 and the acquisition time can take from 12 to 24 months. The land acquisition time is in addition to the construction time listed above, with some minimal overlap.

The details of the ROW costs and construction schedule can be seen in Appendix D.

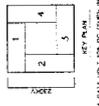
Appendix A

Preliminary Panda 230kV Switchyard Design



- NOTES:**
1. ALL LINES & EQUIPMENT ARE SHOWN ON SHEET (1)
 2. ALL LINES & EQUIPMENT ARE SHOWN ON SHEET (2)
 3. ALL LINES & EQUIPMENT ARE SHOWN ON SHEET (3)
 4. ALL LINES & EQUIPMENT ARE SHOWN ON SHEET (4)
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 8. ALL LINES & EQUIPMENT ARE SHOWN ON SHEET (8)
 9. ALL LINES & EQUIPMENT ARE SHOWN ON SHEET (9)
 10. ALL LINES & EQUIPMENT ARE SHOWN ON SHEET (10)

LINE	FUNCTION	TYPE	STATUS	DESCRIPTION
1	138KV	LINE	X	138KV LINE TO BUSBAR 138KV
2	138KV	LINE	X	138KV LINE TO BUSBAR 138KV
3	138KV	LINE	X	138KV LINE TO BUSBAR 138KV
4	138KV	LINE	X	138KV LINE TO BUSBAR 138KV
5	138KV	LINE	X	138KV LINE TO BUSBAR 138KV
6	138KV	LINE	X	138KV LINE TO BUSBAR 138KV
7	138KV	LINE	X	138KV LINE TO BUSBAR 138KV
8	138KV	LINE	X	138KV LINE TO BUSBAR 138KV
9	138KV	LINE	X	138KV LINE TO BUSBAR 138KV
10	138KV	LINE	X	138KV LINE TO BUSBAR 138KV



RELAY	FUNCTION	TYPE	STATUS	DESCRIPTION
1	OVERCURRENT	RELAY	X	OVERCURRENT RELAY ON 138KV LINE
2	DIFFERENTIAL	RELAY	X	DIFFERENTIAL RELAY ON 138KV BUSBAR
3	UNDERVOLTAGE	RELAY	X	UNDERVOLTAGE RELAY ON 138KV BUSBAR
4	OVERCURRENT	RELAY	X	OVERCURRENT RELAY ON 13.8KV BUSBAR
5	DIFFERENTIAL	RELAY	X	DIFFERENTIAL RELAY ON 13.8KV BUSBAR
6	UNDERVOLTAGE	RELAY	X	UNDERVOLTAGE RELAY ON 13.8KV BUSBAR

PRELIMINARY
 Q44 Preliminary One-Line 7-13-09
 NOT TO BE USED FOR CONSTRUCTION

NO.	DATE	DESCRIPTION	BY	CHKD
1	7-13-09	ISSUED FOR REVIEW	J. SMITH	
2	7-13-09	REVISIONS	J. SMITH	
3	7-13-09	REVISIONS	J. SMITH	
4	7-13-09	REVISIONS	J. SMITH	
5	7-13-09	REVISIONS	J. SMITH	

APR
 PROJECT NO. C-148544
 SHEET NO. 10 OF 10
 DATE: 7-13-09
 DRAWN BY: J. SMITH
 CHECKED BY: J. SMITH
 APPROVED BY: J. SMITH

Panda 230kV Physical One-Line



Appendix B

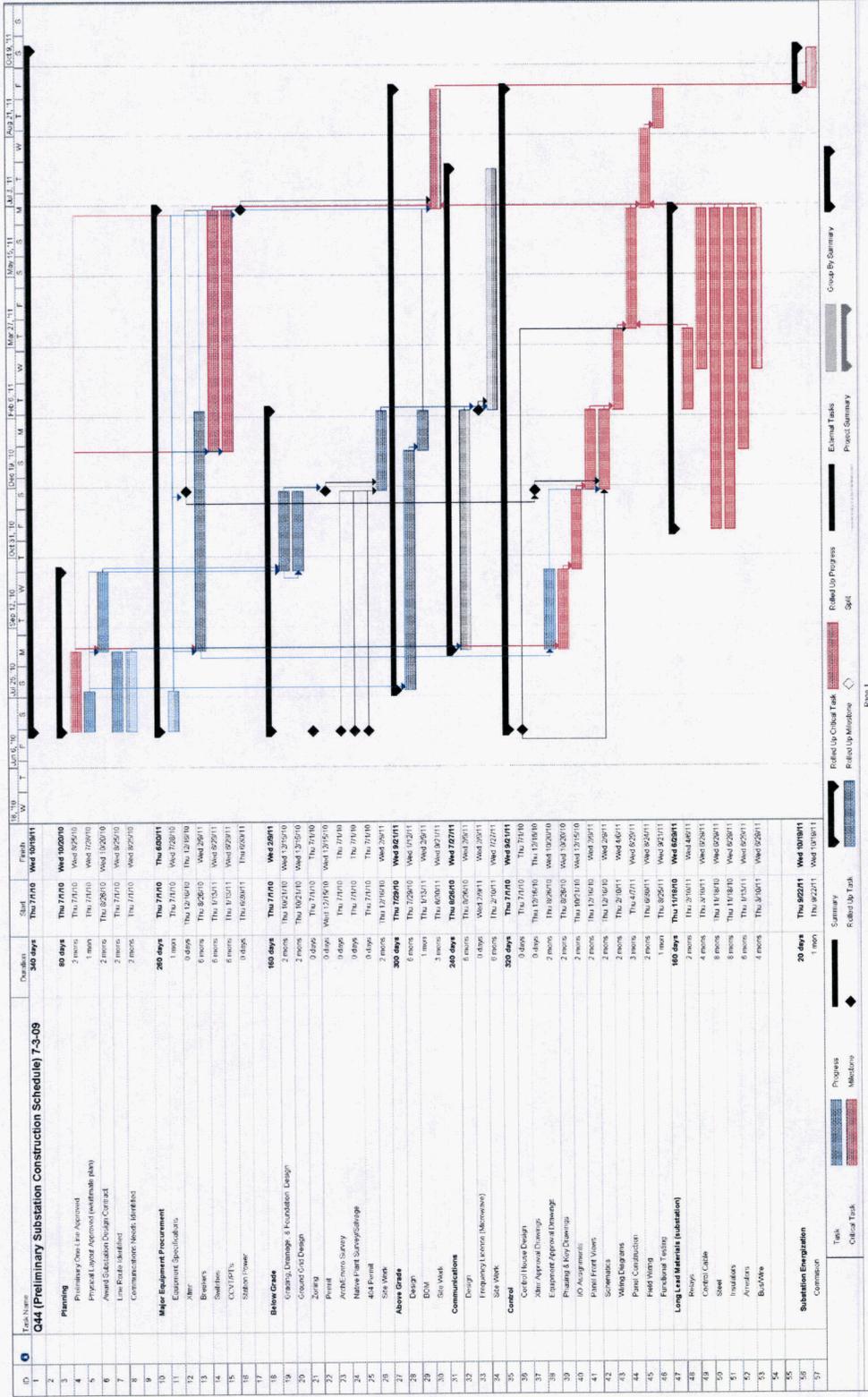
Panda 230kV Interconnection Cost Estimate and Construction Schedule Details

Queue #44 (7-3-09)

Scope: New 230kV line bay at Panda Substation
 1 - Deadend Structure, 1 - 230kV switch, 1 - 230kV breaker
 Protective relay addition & reconfiguration
 Approximately 10mi of fiber-optic cable underbuild from Q44 site to Gila Bend for 2nd communication path

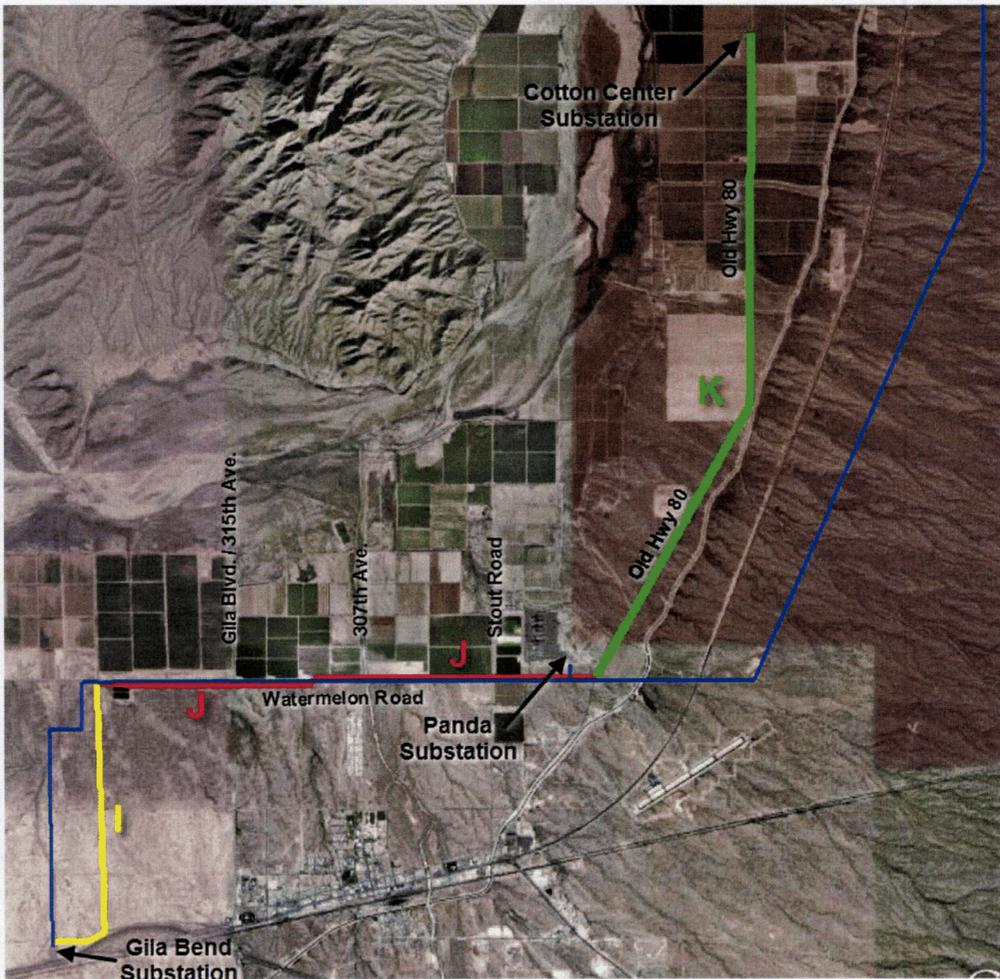
	Overall Project Total	230kV Bay at Panda for Q44						
Engineering and Design	\$80,000	\$80,000	\$0	\$0	\$0	\$0	\$0	\$0
Below grade	\$136,000	\$136,000	\$0	\$0	\$0	\$0	\$0	\$0
Construction Labor (Steel, Equipment & Control)	\$343,000	\$343,000	\$0	\$0	\$0	\$0	\$0	\$0
Steel Structures	\$53,000	\$53,000	\$0	\$0	\$0	\$0	\$0	\$0
Electrical Equipment	\$166,000	\$166,000	\$0	\$0	\$0	\$0	\$0	\$0
Control & Communications	\$443,000	\$443,000	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal :	\$1,221,000	\$1,221,000	\$0	\$0	\$0	\$0	\$0	\$0
Contingency : (20%)	\$244,000	\$244,000	\$0	\$0	\$0	\$0	\$0	\$0
Totals :		\$1,465,000	\$0	\$0	\$0	\$0	\$0	\$0
Grand-Total :		\$1,465,000						

Q44 (280MW) - Facilities Study



Appendix C

69kV System Upgrades Cost Estimate and Construction Schedule Details

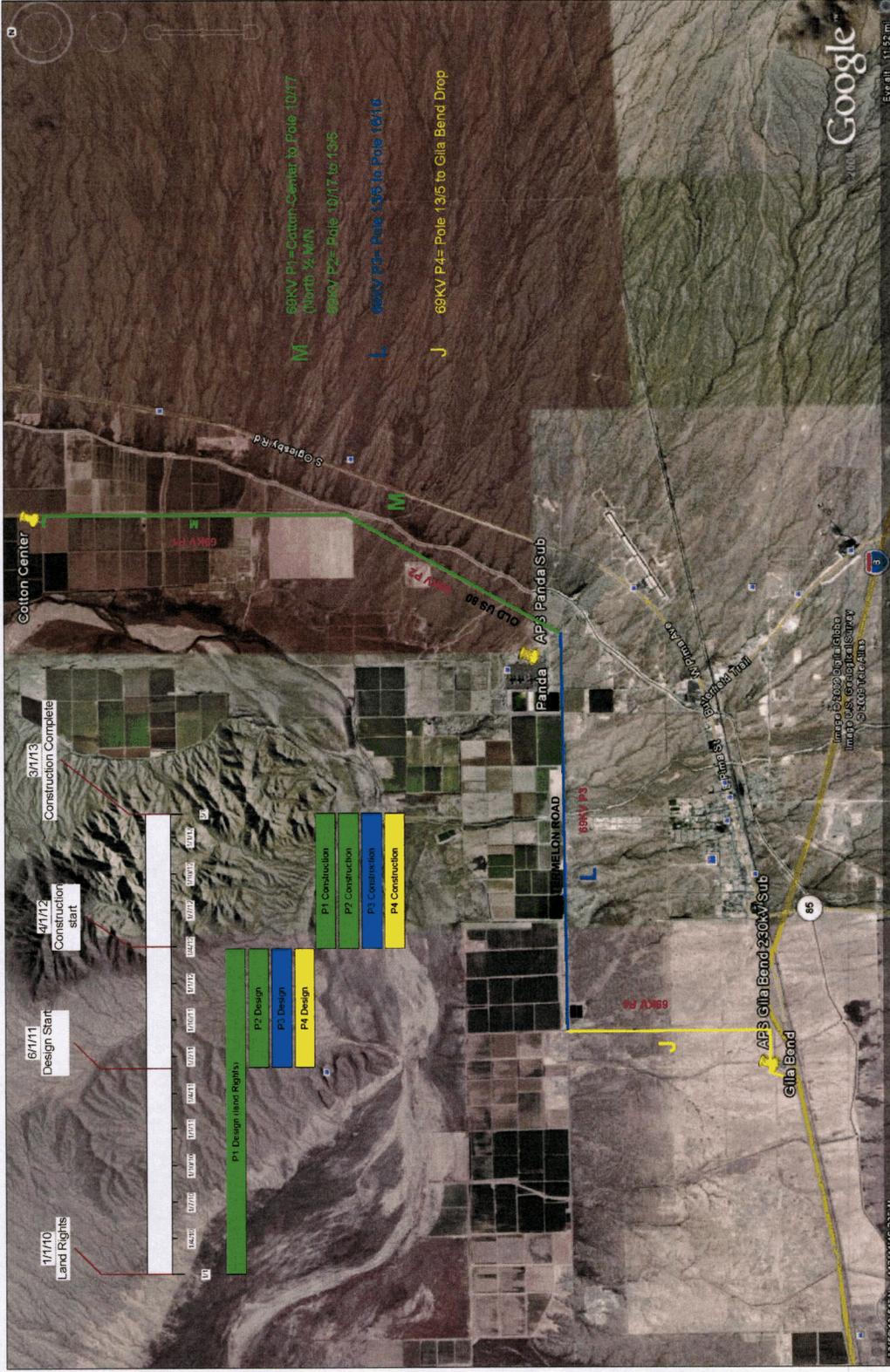


- I Existing 69kV East and North of Gila Bend Sub
- J South then North of Watermelon Road to Old Hwy 80
- K East &/or West of Old Hwy 80
- Existing 230kV Line

69kV ROUTE OPTIONS & ACQUISITION ESTIMATE		
Rebuild in existing easements	I Total	0K
Rebuild in existing easements	J Total	0K
	K Total	350K
Acquisition Time Required:	12 to 24 Months	

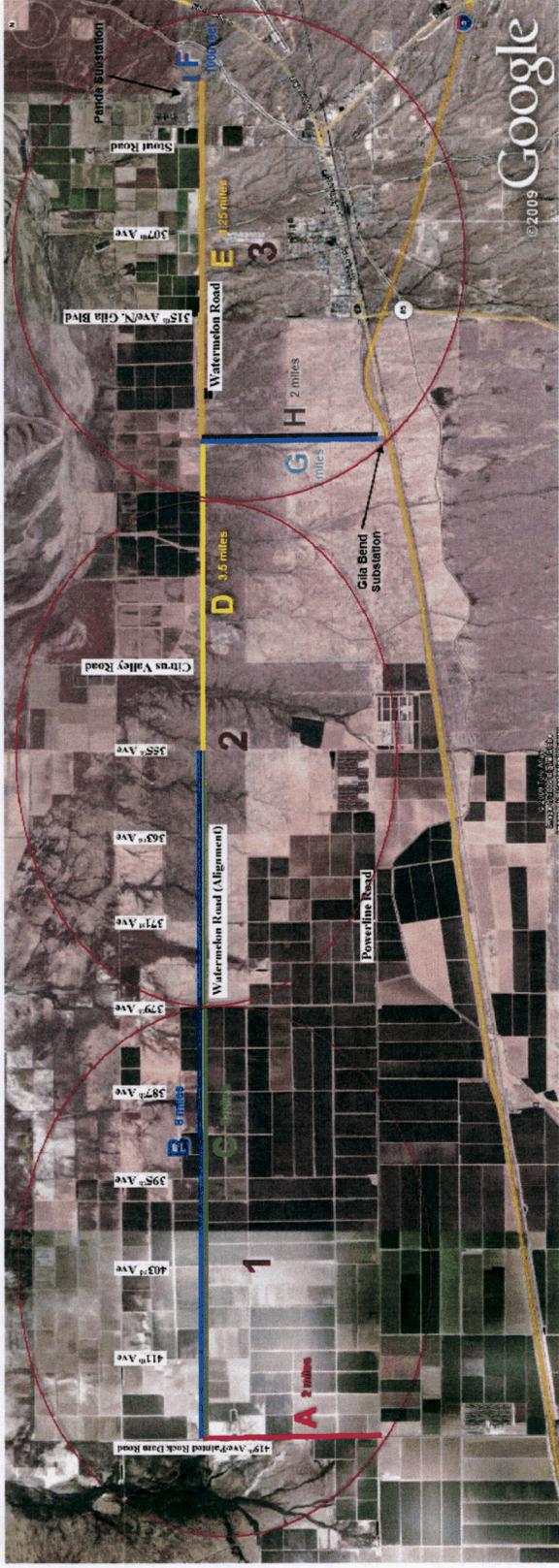
Gila Bend to Cotton Center Sub Cost Estimate		
69KV COST ESTIMATE		
DESCRIPTION	QUANTITY	COST
TANGENT STRUCTURES	187	\$1,014,868.69
SELF SUPPORTING STRUCTURES	10	\$195,608.01
ELECTRICAL EQUIPMENT & FRAMING	N/A	\$2,149,761.33
		\$3,360,238.03
APS PROJECT MANAGEMENT & DESIGN	N/A	\$127,088.16
COST OF REMOVING OLD STRUCTURES & FRAMING		\$447,964.81
TOTAL COST OF 69KV WORK		\$3,935,291.00
12KV COST ESTIMATE		
DESCRIPTION	QUANTITY	COST
ELECTRICAL EQUIPMENT & FRAMING	N/A	\$1,158,912.93
APS PROJECT MANAGEMENT & DESIGN	N/A	\$86,410.60
COST OF REMOVING OLD FRAMING	N/A	\$271,907.97
TOTAL COST OF 12KV WORK		\$1,517,231.50
ENTIRE COST OF JOB		\$5,452,522.50

Q44 (280MW) - Facilities Study



Appendix D

Land Acquisition Costs for Q44 Generator 230kV Interconnection Line



280KV ROUTE OPTIONS & ACQUISITION ESTIMATE

Route	Length (miles)	Valuation Zone	Estimated Cost
Route A	2.0	1	\$1,200,000
Route B	5.0	1	\$3,000,000
Route C	3.0	1	\$1,800,000
Route D	3.5	1	\$2,100,000
Route E	1.5	1	\$900,000
Route F	1.0	1	\$600,000
Route G	2.0	2	\$2,400,000
Route H	2.0	3	\$2,400,000

Valuation Zone	Estimated Cost
1	\$1,200,000
2	\$2,400,000
3	\$2,400,000

Route	Estimated Cost
Route A	\$1,200,000
Route B	\$3,000,000
Route C	\$1,800,000
Route D	\$2,100,000
Route E	\$900,000
Route F	\$600,000
Route G	\$2,400,000
Route H	\$2,400,000

Route	Estimated Cost
Route A	\$1,200,000
Route B	\$3,000,000
Route C	\$1,800,000
Route D	\$2,100,000
Route E	\$900,000
Route F	\$600,000
Route G	\$2,400,000
Route H	\$2,400,000

240 foot corridor East of Yarnes Road (Load Center)

1000 foot corridor North of Section Line (Watermelon Road Alignment Corridor)

1000 foot corridor South of Section Line (Watermelon Road Alignment Corridor)

1300 foot corridor South of Section Line (Watermelon Road Alignment Corridor)

1750 foot corridor (South of Section Line) (Watermelon Road Alignment Corridor)

500 foot corridor (South of Section Line) (Watermelon Road Alignment Corridor)

500 foot corridor West of 395th Avenue (Watermelon Road Alignment Corridor)

500 foot corridor East of 395th Avenue (Watermelon Road Alignment Corridor)

A 2 miles

B 5 miles

C 3 miles

D 3.5 miles

E 1.5 miles

F 1.0 miles

G 2 miles

H 2 miles

