



PASCUA YAQUI TRIBE SOLAR FEASIBILITY STUDY

MARCH 26, 2014



PRESENTATION OVERVIEW

- Introduction
- Tortuga Ranch
- Casino Del Sol
- Camino de Oeste Site
- Summary of Recommendations



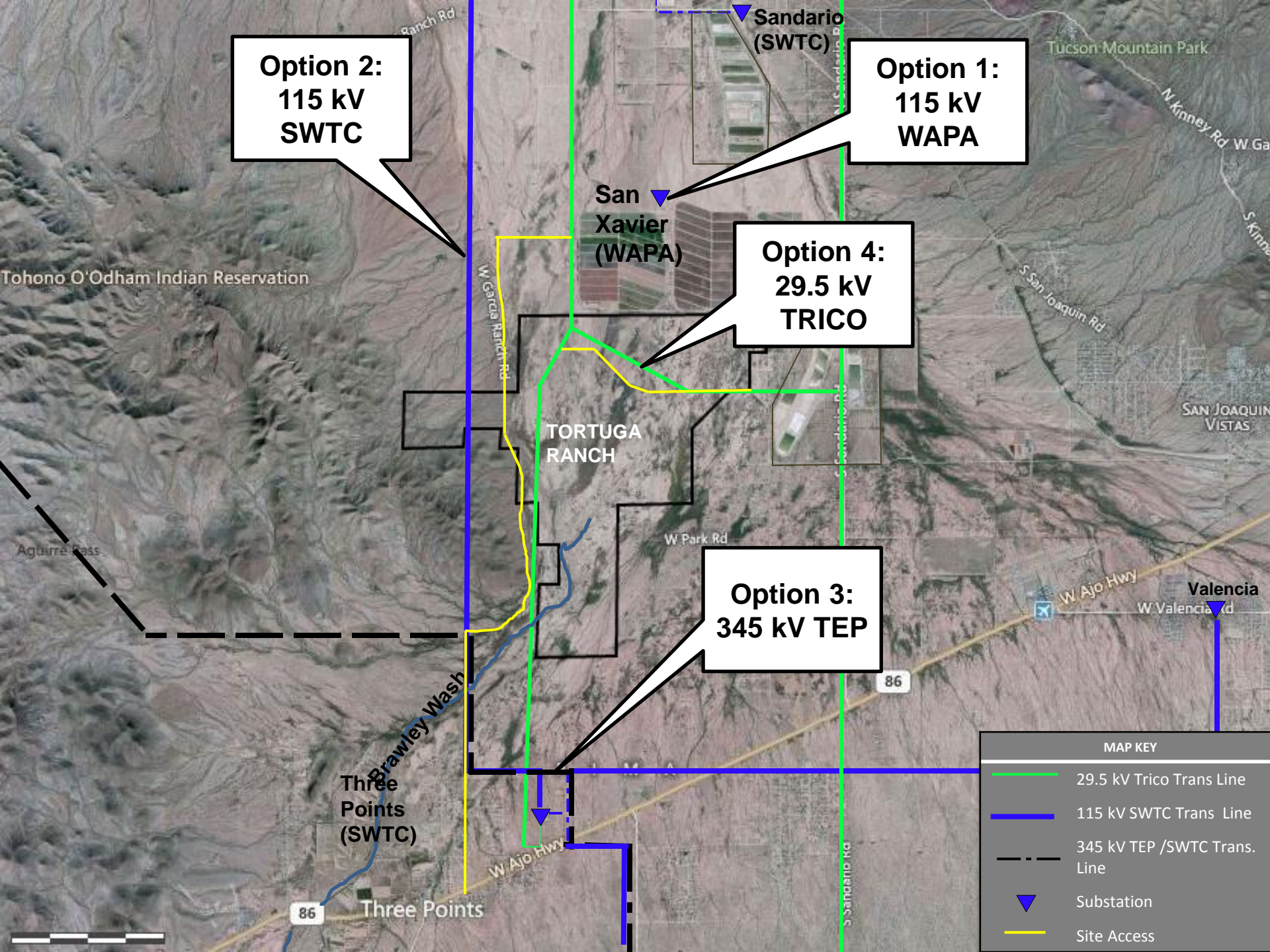
INTRODUCTION

- Vast potential for Pascua Yaqui to participate in the solar industry and work towards
 - Energy self-sufficiency
 - Diversifying bankable investments
 - Minimizing impacts on the environment
- Energy prices for solar dropped significantly
- Conventional energy pricing steadily rising



TORTUGA RANCH





**Option 2:
115 kV
SWTC**

**Option 1:
115 kV
WAPA**

**Option 4:
29.5 kV
TRICO**

**Option 3:
345 kV TEP**

MAP KEY	
—	29.5 kV Trico Trans Line
—	115 kV SWTC Trans Line
- - -	345 kV TEP /SWTC Trans. Line
▼	Substation
—	Site Access



MARKET OVERVIEW

- **TEP** – has plans to procure 70 MW over next couple of years; plans to own
- **SWTC**- no RPS
- **WAPA** – desire to get projects to PV
- **TRICO** – 5 MW Available; 0.03/kWh
- **Other AZ utilities** – nothing to report
- **CA**
 - CAISO needs 4,000 MW
 - SCPPA – Rolling RFP; priced below \$95/MWh
 - Direct Access
 - Community Choice Aggregate
- **Federal Govt.** – PPA opportunities in CA RFPs
 - Fort Irwin for PPA
 - Fort Huachuca – onsite preferred



TORTUGA RANCH MARKET SUMMARY

- Military Bases receive double points for Tribal Energy Projects
- Wheel to CA utilities & Others
- Continue to follow opportunities with military bases and other opportunities

	Rates	115 kV WAPA	115 kV SWTC	345 kV TEP	345 kV SWTC/TEP
CAP, mills/kWh	\$1.340	\$1.340			
SWTC, \$/kW-mo	\$3.911		\$3.911		
ED5-PV, \$/kW-mo	\$2.500	\$2.500			
TEP 345, \$/kW-mo	\$2.461			\$2.461	\$2.461
Total Charges/mo		\$ 105,833	\$ 78,220	\$ 49,220	\$ 49,220
\$/kWh (20 MW)		\$ 0.0254	\$ 0.0188	\$ 0.0118	\$ 0.0118



FINANCIAL MODEL OVERVIEW

- Conventional Partnership
- Tax Assumptions
 - 5 Year Accelerated Depreciation
 - 30% Investment Tax Credit
 - New Market Tax Credits = 39%
 - Indian Employment Tax Credit
- Schedule
 - Begin Development: 6/1/2014
 - Begin Construction: 10/1/2014
 - COD: 1/1/2015
- Financing Assumptions
 - Construction Financing = 65%
 - Interest Rate = 6%
 - Construction Loan Term = 15 years



TORTUGA RANCH FINANCIAL MODEL

PLANT ASSUMPTIONS	
Plant Capacity (MW_{DC})	23.77
Plant Capacity (MW_{AC})	20.00
Yr 1 Output (MWh)	46,219
Technology	Fixed Tilt
Module	REC – 250PE
Inverter	Power One
Residual Value at end of 20 Yr PPA ~ \$500/kW	\$10MM

PROJECT COSTS, MM	
Capital Costs* ($\$2.36/W_{DC}$)	\$ 58.608
Interconnection	\$ 5.000
Capitalized Interest	\$ 0.591
TOTAL PROJECT COSTS	\$ 64,199



FINANCIAL MODEL RESULTS

		INTERNAL RATE OF RETURN (IRR)		
		\$/MWh		
Interest Rate		\$ 65.00	\$ 67.50	\$ 70.00
	6.0%	8.9%	9.9%	10.9%

Year 7 Buyout @ \$1.30/W
IRR = 11.6%



CASINO DEL SOL



CASINO DEL SOL

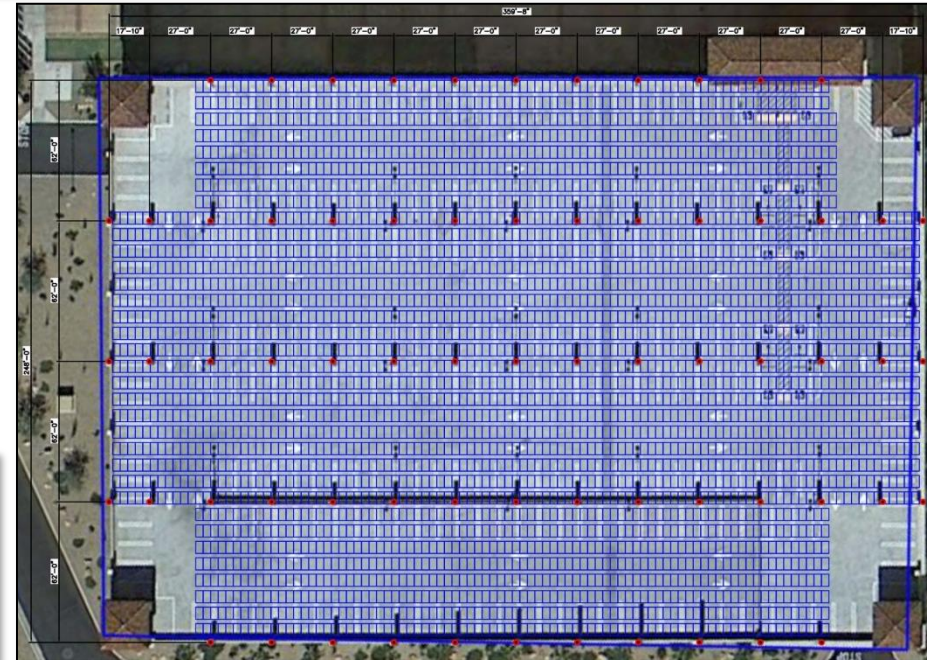
	Sq. ft.	kW _{DC}	MWh
Parking Garage (IRONCO)	79,252	819	1,325
Parking Garage & Main Casino (NREL)	358,070	2,865	4,637
Amphitheater Parking		2,650	4,287

April 2012-May 2013	
Total Energy Consumption, MWh	20,672
Average Demand, kW	3,223
Maximum Demand, kW	3,819
Trico Charge per kWh, \$/kWh	0.083
Trico Charge per kW, \$/kW	\$16.65
Total Annual Energy Costs, Million	\$2.15

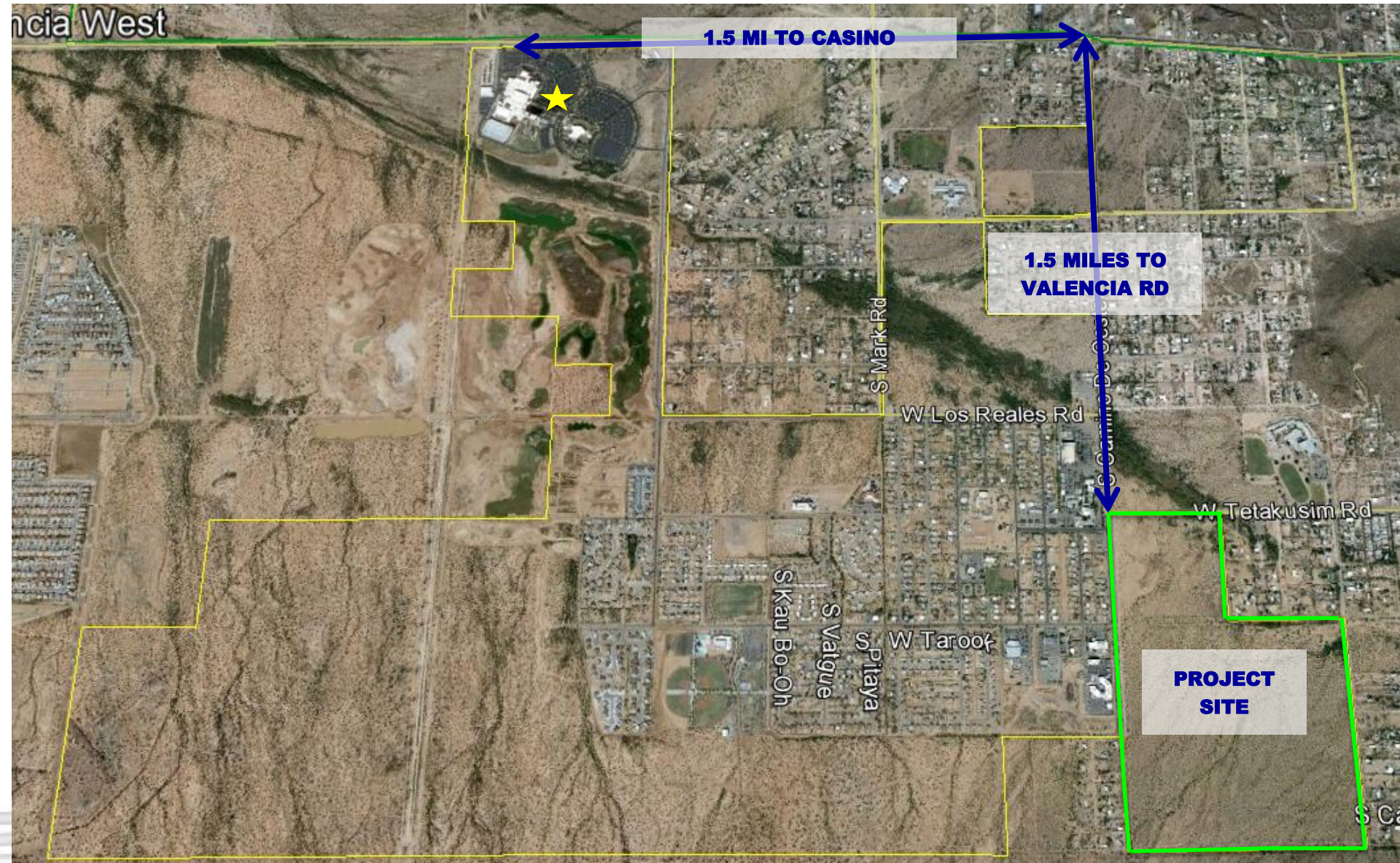


CASINO DEL SOL – MODEL SENSITIVITIES

1. Casino garage canopy covered parking (~\$3.17/W)
2. Casino garage & Casino Amphitheater covered parking (~\$2.57/W)
3. Casino garage & ground mount solar 3.0 miles from Project site (~\$2.36/W)

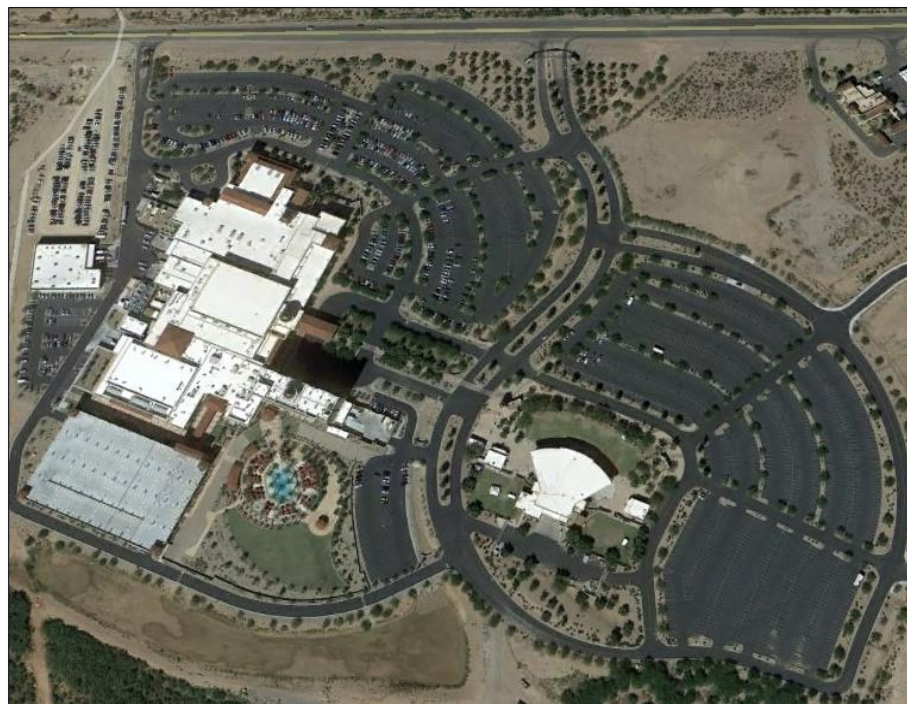


GROUND MOUNT PROJECT SITE LOCATION



FINANCIAL MODEL OVERVIEW

- Conventional Partnership
- Tax Assumptions
 - 5 Year Accelerated Depreciation
 - 30% Investment Tax Credit
 - New Market Tax Credits = 39%
 - Indian Employment Tax Credit
- Schedule
 - Begin Development: 1/1/2014
 - Begin Construction: 5/1/2014
 - COD: 8/1/2014
- Financing Assumptions
 - Construction Financing = 60%
 - Interest Rate = 8%
 - Construction Loan Term = 15 years
 - DOE Grant = \$1-1.5 MM
 - Trico Production Based Incentive = \$0.025/kWh



GARAGE CANOPY COVERED PARKING

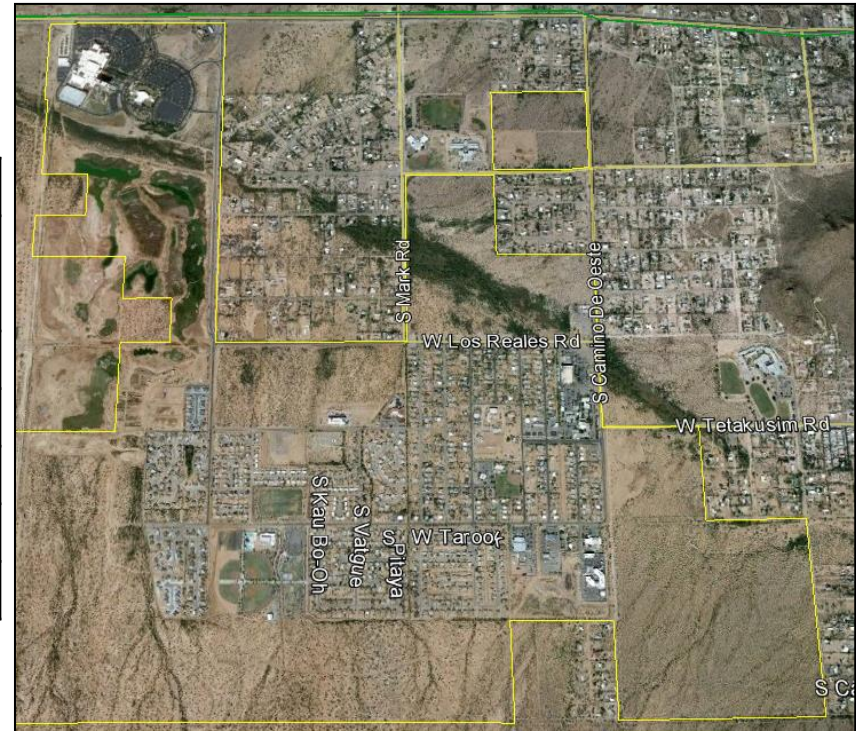
		Internal Rate of Return	
		Price for Power \$/MWh	
Interest Rate		\$83.00	\$108.00
	6.0%	7.0%	16.3%

		Internal Rate of Return	
		Price for Power \$/MWh	
Grant		\$67.50	
	\$500k	6.5%	
	\$750k	10.3%	
	\$1MM	14.9%	



GARAGE & GROUND MOUNT

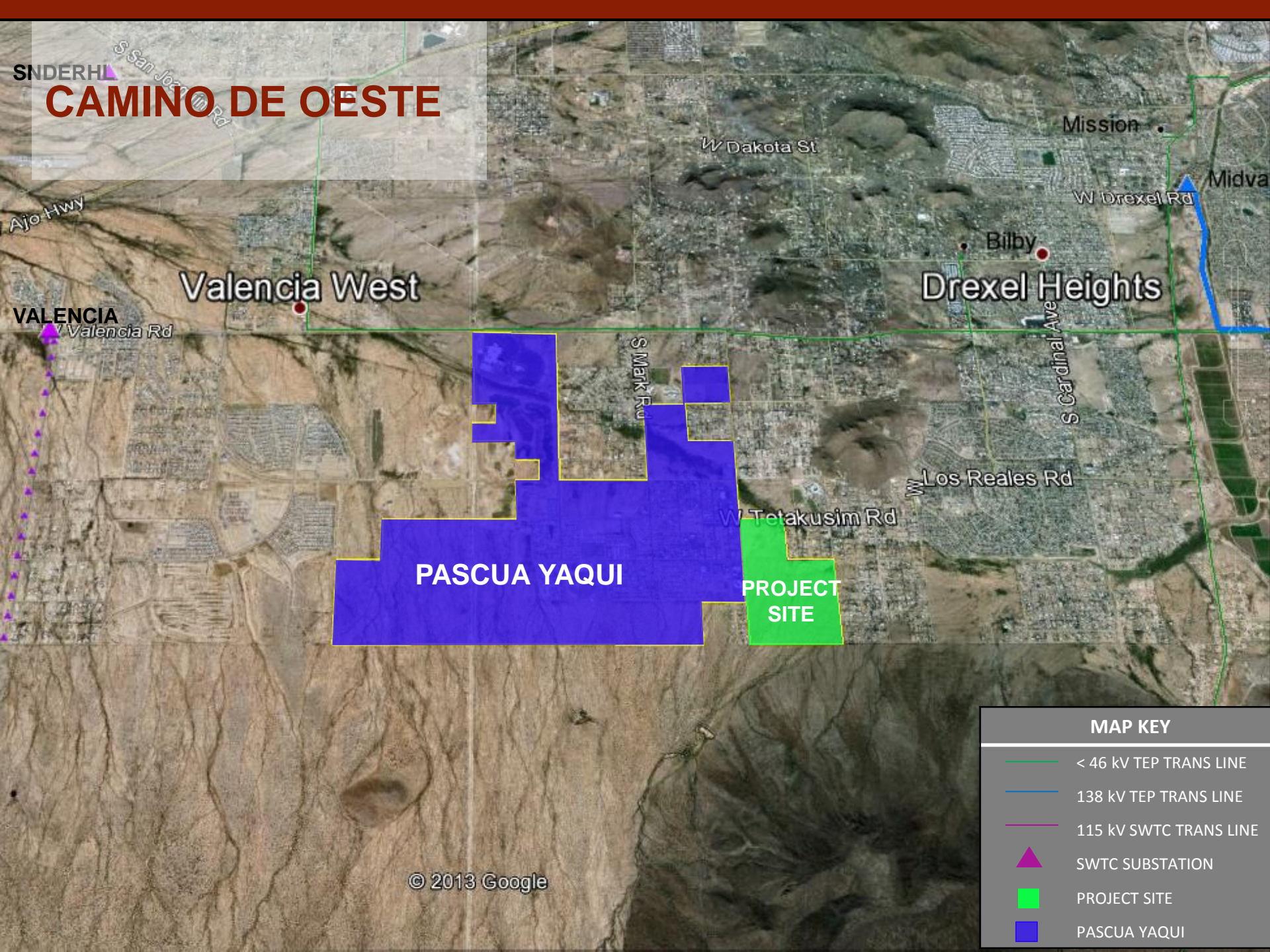
		Internal Rate of Return
		Price for Power \$/MWh
Grant		\$67.50
	\$500k	7.6%
	\$750k	9.1%
	\$1MM	10.7%
	\$1.5 MM	12.4%









CAMINO DE OESTE



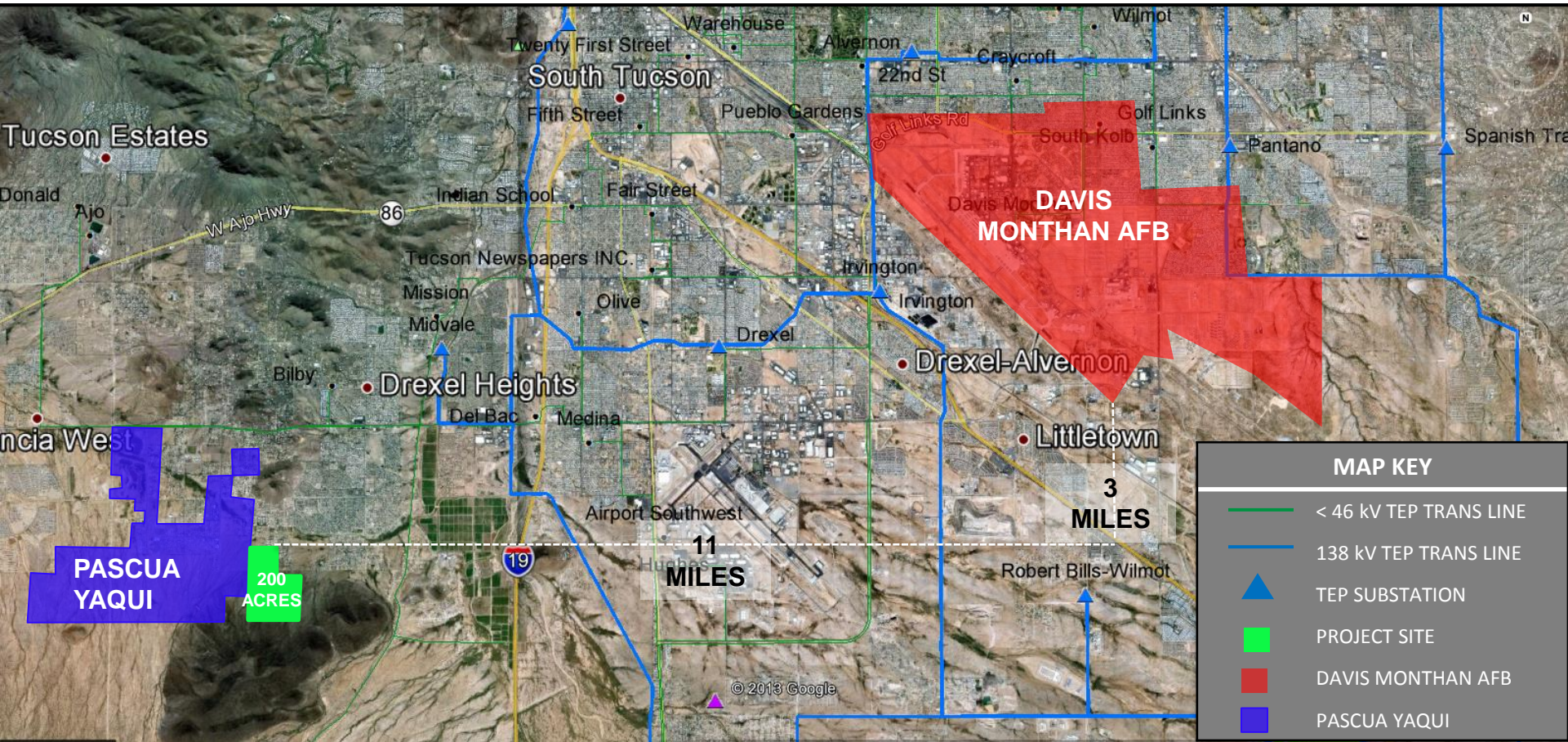
CAMINO DE OESTE



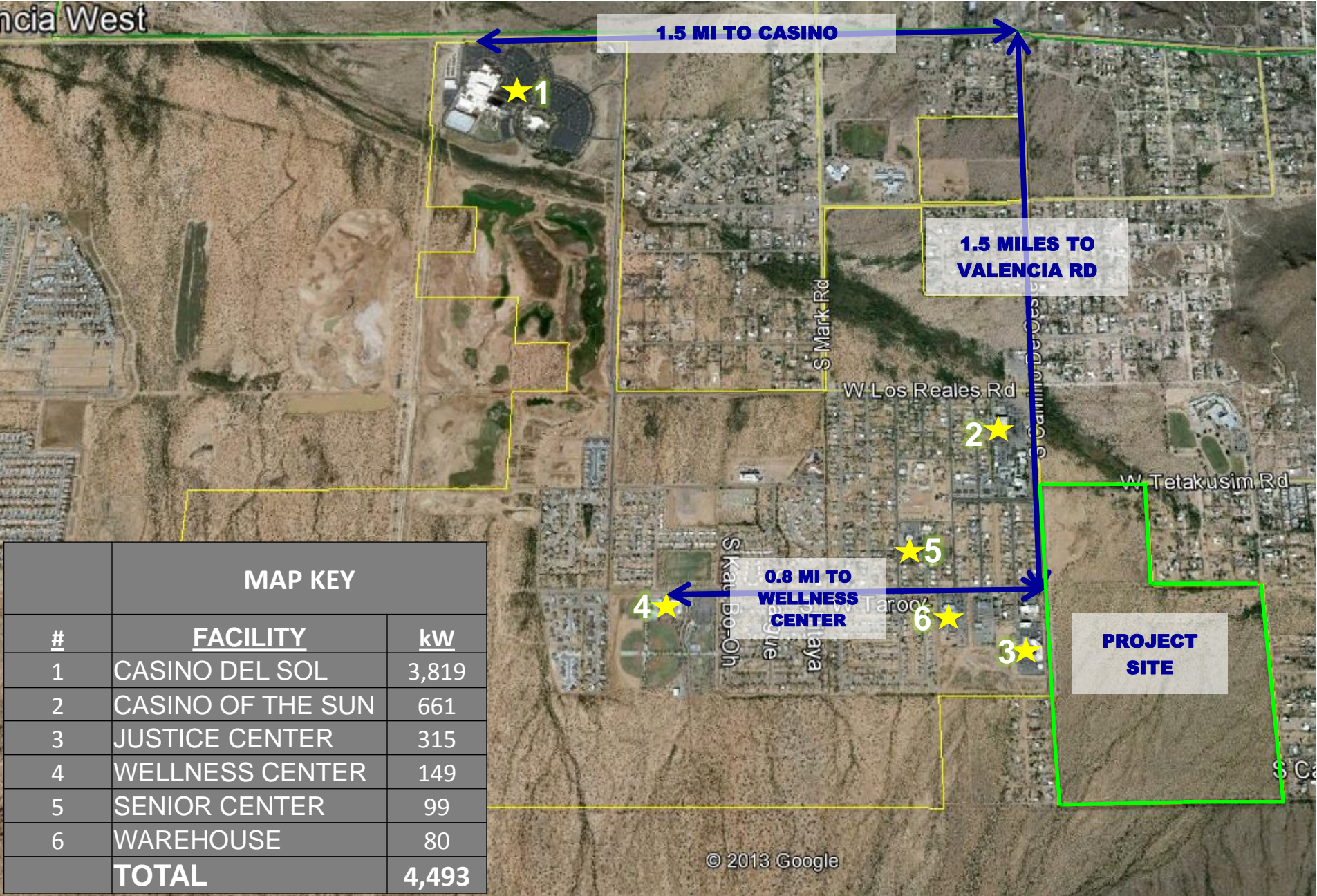
MAP KEY	
	< 46 kV TEP TRANS LINE
	138 kV TEP TRANS LINE
	115 kV SWTC TRANS LINE
	SWTC SUBSTATION
	PROJECT SITE
	PASCUA YAQUI

Davis Monthan AFB

Current Rate = \$ 0.045/kWh
Escalation = 1.5%



Valencia West



MAP KEY

#	FACILITY	kW
1	CASINO DEL SOL	3,819
2	CASINO OF THE SUN	661
3	JUSTICE CENTER	315
4	WELLNESS CENTER	149
5	SENIOR CENTER	99
6	WAREHOUSE	80
	TOTAL	4,493

PASCUA YAQUI PEAK SUMMER LOADS

FACILITIES	kW	Total kW
Casino Del Sol		3,088
Major Commercial Loads		
Casino of the Sun	633	
Justice Center	315	
Wellness Center	149	
Senior Center	99	
Warehouse	80	
Bingo Hall	<u>28</u>	
<i>Total Commercial Loads</i>		1,304
Residential		<u>2,660</u>
TOTAL		7,052

Residential Rate = \$0.12/kWh

Commercial Rate = \$0.083/kWh, Dmd Rate = \$16.65/kW



SUMMARY

- **TORTUGA RANCH**
 - Technically viable site for solar
 - Subject to wheeling charges
 - Must pursue RFPs and be able to compete in current markets
- **CASINO DEL SOL**
 - Nearly immediate returns on consolidating meters
 - Potential partners – Kyocera, SunEdison, Others
 - TRICO appears to offer viable net metering program



SUMMARY

- **UTILITY AUTHORITY**
 - Increase self-determination & economic growth
 - Res = \$0.12/kWh; Comm = \$0.083/kWh, \$16.65/kW
 - TOUA
 - Purchased Trico's system that served 4 largest villages
 - Originally wheeling power from an IOU to a mining operation on the reservation.
 - Rural Electric Association loan program and TO financing
- **ADDITIONAL ALTERNATIVE ENERGY OPPORTUNITIES**
 - Hoover Dam Allocation
 - Biomass Power
 - Geothermal Power



LONG TERM STRATEGIC ENERGY PLAN



QUESTIONS?

