TIOGA ENERGY

Your path to solar. Accelerated.

Best and Final
PPA Proposal for
Gila County
June 14, 2011

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Agenda

- About Tioga Energy
- About Kitchell
- About REC
- Introducing SurePath™ Solar
- PPA Key Provisions
- Case studies
- The Tioga–Kitchell–REC Approach
- Project Proposal
  - Electricity rate analysis
  - Savings analysis
- Systems Monitoring
- Next steps

Introductions

TIOGA ENERGY

- Tioga Energy
  - Role: Project PPA Provider
  - Contact: Aaron van Boer
    415.625.0715

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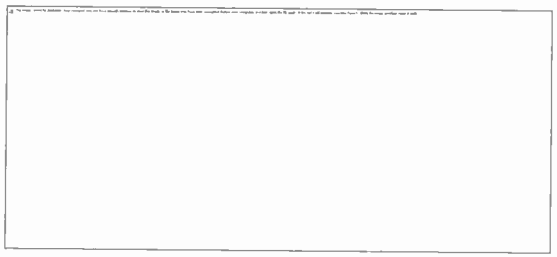
- Kitchell
  - Role: Project EPC (General)
  - Contact: Greg Patzer
    602.222.5300



- Renewable Energy Contracting
  - Role: Project EPC (sub)
  - Contact: Brant Peterson
    602.243.5750

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TIOGA ENERGY

- Tioga Energy, Inc.
  123 Mission Street, 9th floor
  San Francisco, CA 94105
  www.tiogaenergy.com

- Kitchell
  1707 E Highland, Suite 200
  Phoenix, AZ 85016
  (602) 222-5307
  www.kitchell.com

- Renewable Energy Contracting
  1025 E. Broadway Road
  Phoenix, AZ 85040
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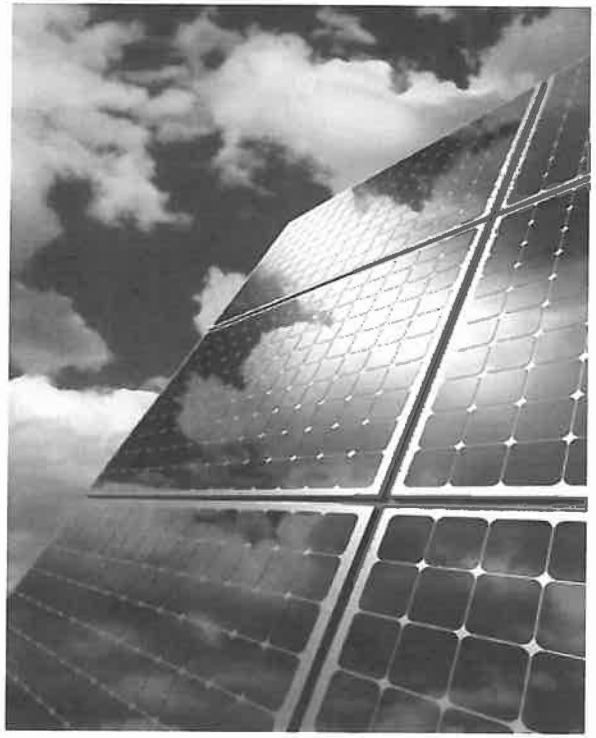
  www.ironco.net



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About Tioga Energy

- **Founded:** by a team of industry veterans in 2007
- **Mission:** to accelerate the adoption of renewable energy by making energy solutions affordable via PPAs
- **Experience:** over 17 MW of PPA projects, across 4 States with municipal and commercial entities
- **Financially backed:** by major international investment, commercial banks, and the leading renewable energy industry venture capitalists
- **Partners:** global leaders in photovoltaic technology and the best renewable energy designers and installers in the industry

About Kitchell

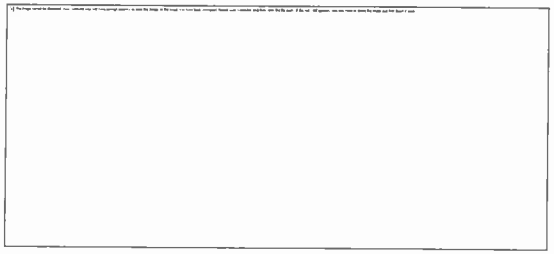
Employee-owned Arizona based corporation founded in 1950, is a leader in sustainable building technologies.

During the past decade, has been at the forefront of the design and development of energy efficient and sustainable structures on more than $10 billion of construction.

Provides general contracting, construction management and engineering and architectural services throughout the United States.

About Renewable Energy Contracting

- One of the largest solar contractors in the state of Arizona with over 65MW Installed
- Emerged from the Legacy of three Generations of Structural Steel, as a division of Ironco Enterprises
- Managed by Industry Experts in Solar and Sustainable Construction
- Connecting Technology, Design, Engineering and Construction



Arizona Project Experience

(Schools & Government)

Host	Project	Location	Size (kW)	System Type	Scope				
					Design	Civil	Erection	Electrical	Fabrication
Completed Projects									
AZ State University Phase 1	Parking Structures 1 & 5	Tempe, AZ	1591	Elevated Tracking	✓		✓		✓
University of Arizona	2nd St Parking Garage	Tucson, AZ	242	Elevated Fixed	✓		✓		✓
City of Mesa	Mesa Water Treatment Plant	Mesa, AZ	11	CPV - Dual Axis Tracking			✓		
AZ State University Phase 2	8 Sites on Main & West Campuses	Tempe/Phoenix A	5656	Various	✓	✓	✓		✓
University of Arizona	3 Existing Building Roofs	Tucson, AZ	570	Roof Mount Fixed	✓		✓		
Payson Public Schools	Various	Payson, AZ	1347	Covered Parking	✓		✓		✓
Town of Oro Valley	Municipal Offices	Oro Valley, AZ	343	Covered Parking	✓		✓		✓
Santa Cruz Valley School District	High School	Eloy, AZ	227	Ground Mount Tracking		✓	✓		✓
Arlington Elem School District	Elementary School	Arlington, AZ	280	Covered Parking	✓		✓		✓
City of Mesa	Mesa Water Treatment Plant	Mesa, AZ	50	CPV - Dual Axis Tracking	✓	✓	✓	✓	
Projects Under Construction/In Pre-Construction									
Phoenix Elem School District	4 Elementary Schools	Phoenix, AZ	1319	Covered Parking	✓		✓		✓
PLC	Charter School	Phoenix, AZ	30	Roof Mount	✓		✓		✓
AZ State University Phases 3 & 4	15 Sites on Main & East Campuses	Tempe, AZ	3153	Various	✓	✓	✓		✓
City of El Mirage	Community Center	El Mirage, AZ	201	Covered Parking	✓		✓		✓
Buckeye School District	6 Schools and District Office	Buckeye, AZ	3204	Covered Parking & Ground Mount			✓		✓
Vail School District	School & District Office	Vail, AZ	644	Covered Parking	✓		✓		✓
Flagstaff Elem School District	2 Elementary Schools	Flagstaff, AZ	282	Covered Parking, Ground Mount	✓		✓		✓
Sun City Fire Department	3 Fire Stations, Admin Building	Sun City, AZ	286	Covered Parking	✓		✓		✓
		TOTAL:	**19.4**	**MW**					

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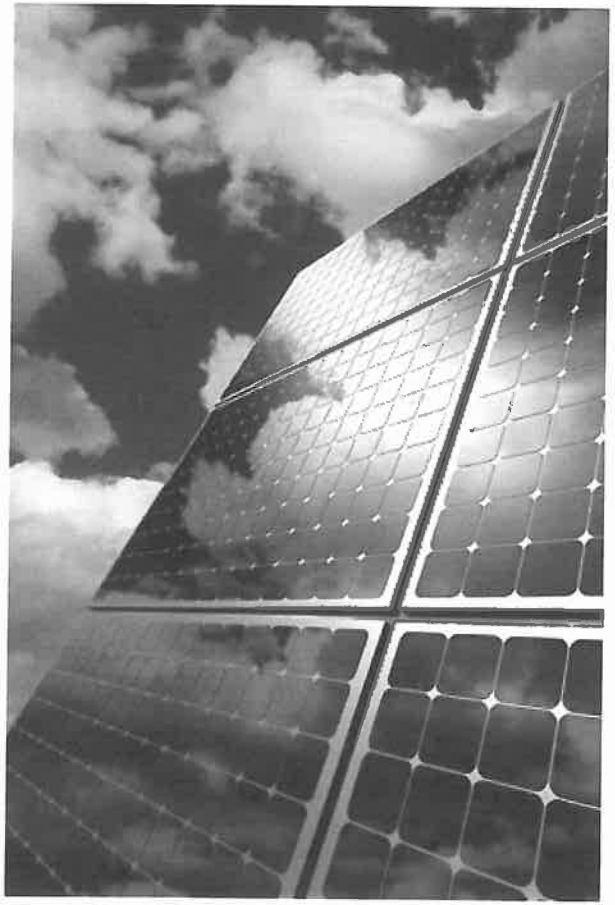
Introducing SurePath Solar℠

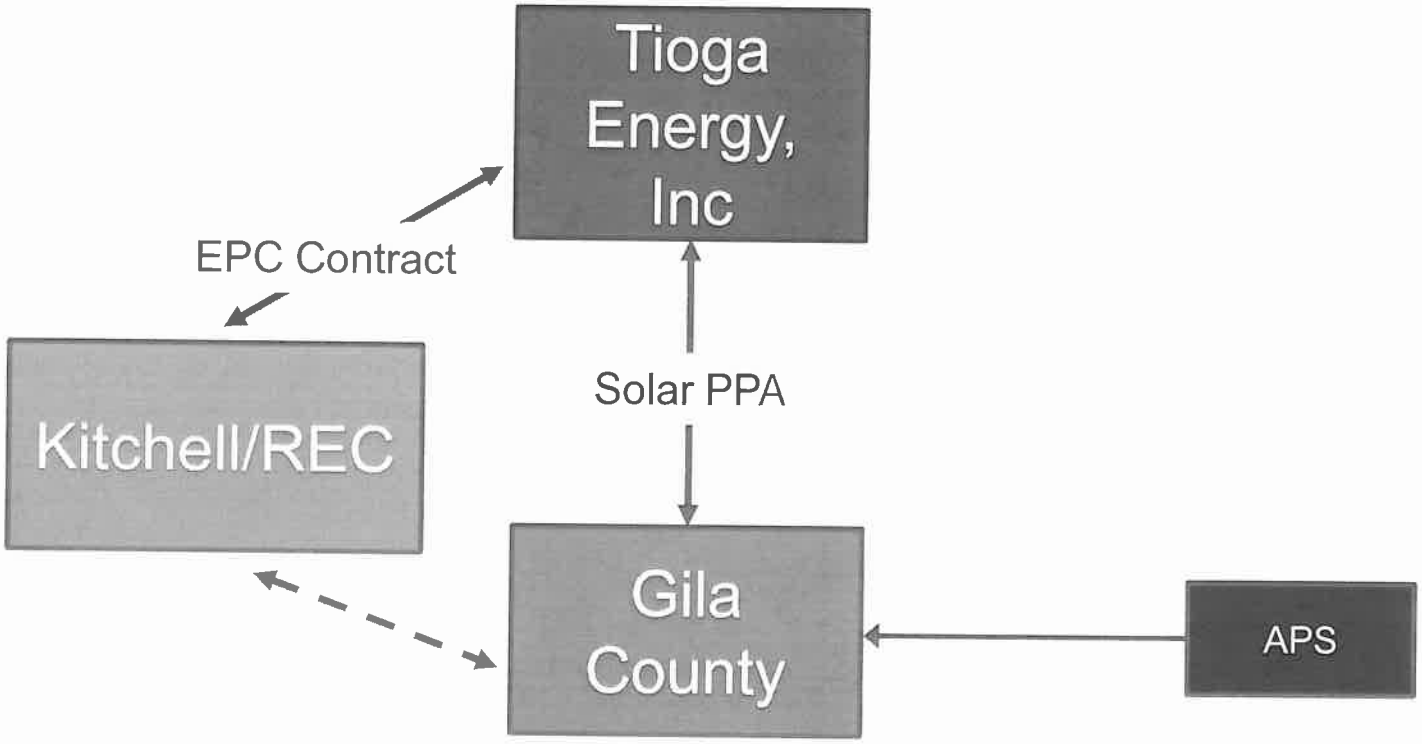
- Tioga Energy owns and operates the PV system
- Customer gets power at a predictable, low price
- Tioga Energy and Kitchell handle all details
  - Design and engineering
  - Construction and maintenance
  - Financing and RECs
  - Rebates and incentives
  - Energy metering and billing
- Affordable rates guaranteed for life of contract

Tioga PPA Key Provisions

- No upfront capital required
- 20-year term
- Early purchase options at years 7, 10 and 15
- Fixed annual escalator
- End-of-term options
  - Renew the agreement for a second term
  - Purchase the system outright from Tioga at the Fair Market Value price
  - Have the system removed at Tioga's expense



Gila County's View



…Tioga makes it simple.

The Tioga-Kitchell-REC Approach

- **Site Selection: Maximizing Benefits, Minimizing Cost**
  - Globe County Courthouse
  - Central Heights Complex
  - Public Works Facility
- **Solar Carport Structures**
  - Shaded Parking
  - Best value (cost + energy)
- **APS School & Government Solar Incentive Program**
  - **Standard Solution:** 200 kW award at Globe County Courthouse
  - **INNOVATIVE SOLUTION:** 700 kW aggregate award
- **Site Service Entrance Sections (SES)**
  - Compliance, Efficiency and Cost considerations
- **Capturing ALL costs upfront**
  - No change orders, no surprise costs

Alt #1: Globe County Courthouse – 205 kW

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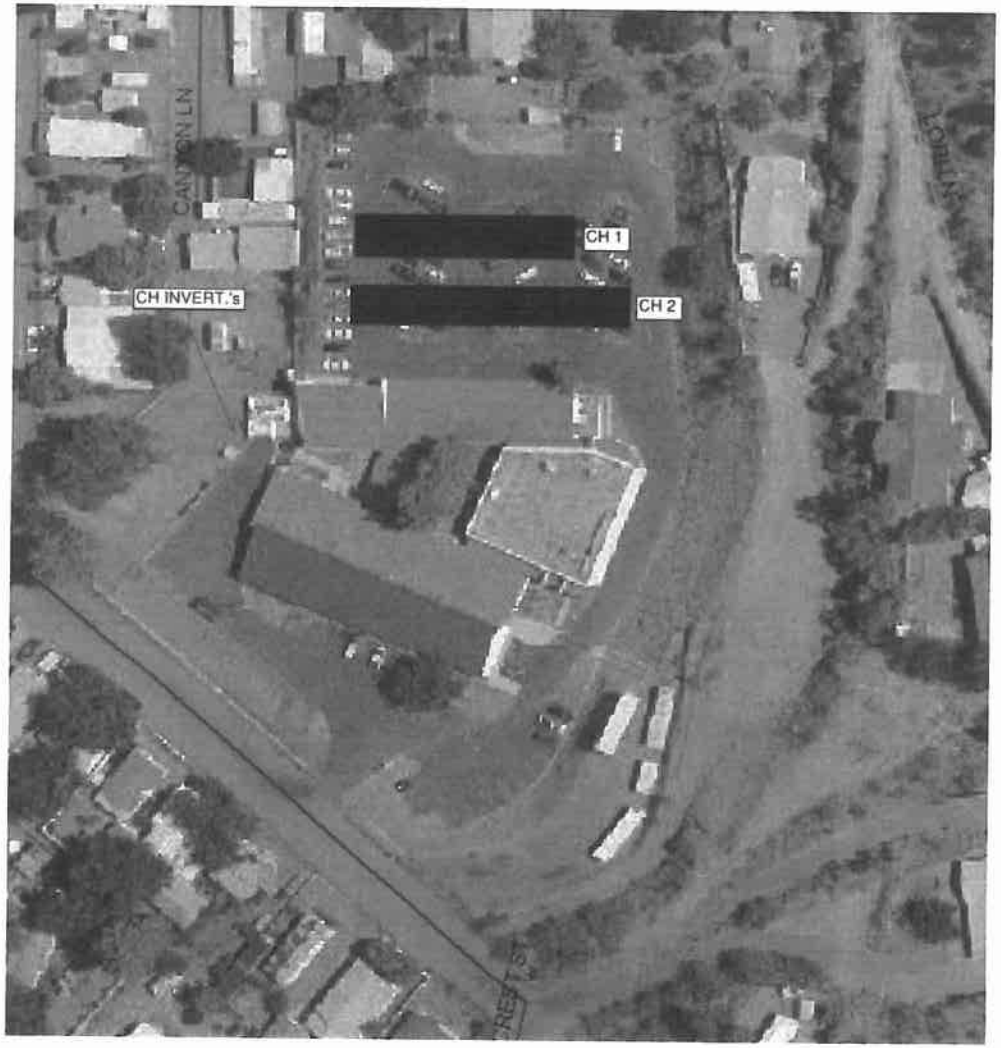
Alt #2: Central Heights Complex – 184 kW



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Best & Final PPA Proposal – Alt #1

- **Sites (1):**
  - Globe County Courthouse (Alt #1)

- **Project Size: 204.96 kW (DC)**

- **PPA Contract Term:** 20 yrs

- **Pricing Option 1:**
  - **Starting Rate:** $0.080/kWh
  - **Annual Escalation:** 0%

  Savings
  1st Year: ($3,645)
  Cumulative: $149,000

- **Pricing Option 2:**
  - **Starting Rate:** $0.067/kWh
  - **Annual Escalation:** 3%

  Savings
  1st Year: $458
  Cumulative: $86,000

Best & Final PPA Proposal – Alt #2

- **Sites (3):**
  - Globe County Courthouse (Alt #2) – 420.00 kW (DC)
  - Central Heights Complex – 184.24 kW (DC)
  - Public Works Facility – 97.44 kW (DC)
- **Project Size (aggregate): 701.68 kW (DC)**
- **PPA Contract Term:** 20 yrs
- **Pricing Option 1:**
  - **Starting Rate:** $0.071/kWh
  - **Annual Escalation:** 0% (flat)

  Savings
  1st Year: $14,133
  Cumulative: $1,176,000
- **Pricing Option 2:**
  - **Starting Rate:** $0.059/kWh
  - **Annual Escalation:** 3%

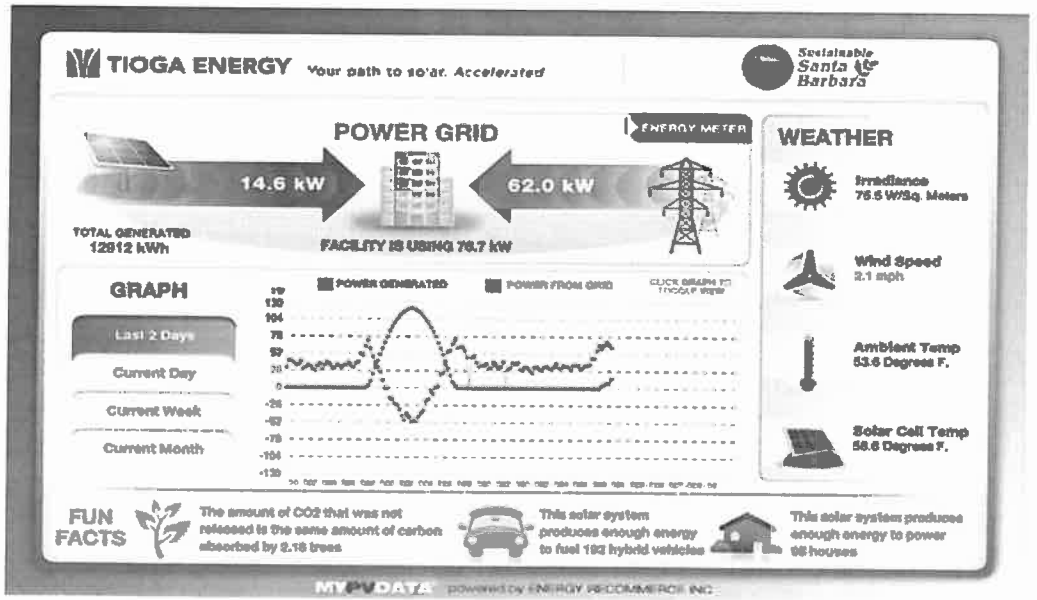
  Savings
  1st Year: $27,440
  Cumulative: $1,009,000

Alt #2 Savings Analysis – 0% Escalator Option

EIA Electricity Price Data Set	AZ, Electricity price in the commercial sector
Average Historical Utility CAGR	4.05%
Most Probable Future Utility CAGR	4.21%
Annual Electricity Consumption, kWh	1,776,176
Utility Rate Offset by Solar, $/kWh	$ 0.082
Solar Power System Size, kW	701.68 kW
PPA Initial Rate, $/kWh	$ 0.071
PPA Escalator, %	0.00%
Estimated 1st Year Production, kWh	1,110,601
Annual Production Degradation, %	0.50%
Estimated Percentage of Energy Requirement Provided by Solar:	62.5%
Host Discount Rate, %	6.00%
Financial Results	
Most probable first-year savings	**$ 14,113**
Most probable cumulative 20-year savings	**$ 1,176,000**
Most probable Net Present Value (NPV) of savings	**$ 563,000**

System Monitoring

- Tioga Energy Monitoring
- Provided by Energy Recommerce (National Semiconductor)



Demos

www.tiogaenergy.com